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# THE NORDENSON CAMERA.

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This camera can be used by the ophthalmologist. The illumination is by a special arc lamp, adjustable with clock work. The first three figures explain the instrument, using the same numbers to designate various parts. Two figures illustrate photographs obtained with this camera, which may be used to record the progress of a case.

For many years attempts have been made to photograph the fundus oculi. All of the cameras have been large, cumbersome and adapted only to laboratory work. The Nordenson camera, governed by the Gullstrand principle used in central ophthalmoscopy, can be used by any ophthalmologist in his consulting room. The instrument combines a powerful illuminating unit, a 5 ampere arc lamp, with condensing lenses and prisms so arranged that the fundus is flooded with light.

The illuminating and photographing elements are supported on a compound stage similar to the one used for the slit lamp and other ophthalmologic instruments of precision. The elevation of the camera is regulated by motion of screw 7.

The source of illumination is the ordinary street current, either direct or indirect, which passes thru a resistance coil. If on direct current, the carbons may be fed automatically by the clockwork 25. The wires are connected to the arc at 9 and the position of the carbons is maintained by the adjusting lever 10 which brings the horizontal and the vertical carbons in contact. The rotating key 11 controls the spark gap. If the vertical carbon is the more brilliant of the two, the wall plug must be reversed. The carbons must be accurately placed in the lamp housing.

The correct focus of the arc is determined by putting the brake 17 on "off" and turning 15 one notch; when the control plunger 21 is pressed the smoked glass screen, which is in the shutter box, swings out of position. A white sheet of paper is held six inches from 29. By moving the lamp housing by 12, we bring the light to a focus as an intensely white circle. If the circle is not round and of uniform density 14 and 23, the vertical and horizontal dovetails, are manipulated so that the arc is exactly centered. When the paper is brought to the focus of the eye a white crescent is seen; 15 is then turned three times and 21 pushed so that 16 rotates. The brake is put "on" and 15 turned four notches; 21 is pressed and 16 automatically revolves. The paper is again held six inches from 8 and a bluish white circle of uniform density is observed, which at the focal distance of the instrument is a small crescent.

The illuminating and depicting rays are sharply separated as they pass thru the patient's pupil. The first enter at the periphery and the latter leave thru the center.

The light passes thru the condensing lens 29 which is placed in the opening 8. The observer looks thru 18 and focuses on the cross wires in the field by moving the ocular in its slide. The image, picture size, is reflected on the ground glass plate 28. The rays of light, which are observed thru the blue glass window 13, are reflected thru a condensing lens 30 to the primary reflecting prism 31, from there to a secondary reflecting prism 32, from which they extend forward thru 29.

It is best to dilate the patient's pupil to its maximum, altho some isolated views of the fundus may be obtained

under partial mydriasis. The patient is told what is expected of her and the apparatus explained. The instrument can be used only in a black room After the preliminary focusing of the

The plate 4.5 x 6 cm. in size is placed in the holder 27 which is put in 24 and the plate protector removed. 15 is turned four clicks, otherwise the eye will be injured by the intense un-

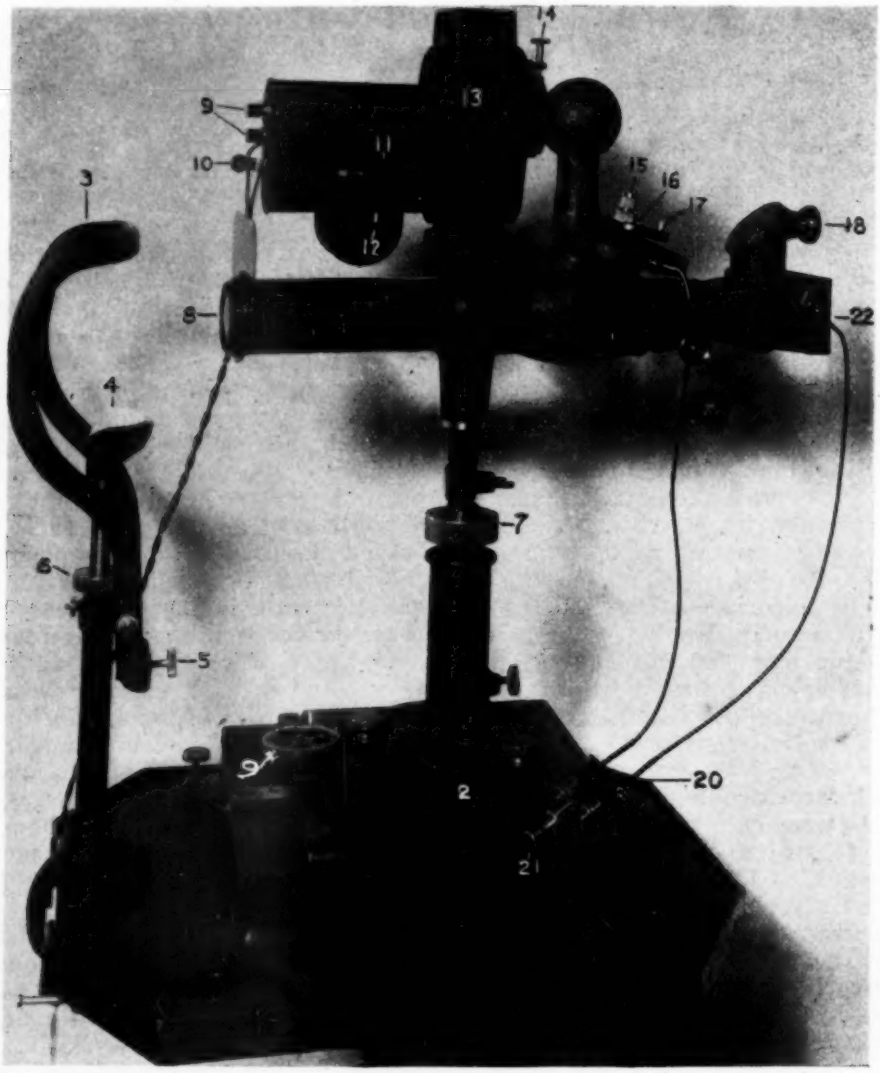


Fig. 1.—Important adjustments and mechanical features of the Nordenson camera.

carbons and the preparation of the patient and room, the patient is placed before the instrument. She sits on a stool which is so regulated that she can comfortably hold her chin in 4 and her forehead against 3. The adjustments of 3 and 4 are made by rotating 5 and 6.

screened rays. After turning 15, 16 is lifted and the arrow on it placed opposite the number indicating the length of time for the exposure of the plate. These numbers, on the dial between 16 and 17, are from "0" to "6" and give the approximate length of time of exposure, which is from about 1/8 to

1/22 of a second. The current is turned on. Sometimes the picture is viewed on the ground glass plate 26 which fits in 24.

If the right eye is to be examined, the patient is directed to look slightly to the left side, the instrument is so turned that the light shines on the temporal side of the globe. The size of the light beam is adjusted by movement of 1. After this gross adjustment on the sclera, the finer placement of the light is accomplished by turning 1 and 2. The small crescent of light is focused on the lower pupillary margin of the iris and must be kept there as the eyeball shifts. The observer looks thru 18, 19 is controlled by one hand and 20 and 21 grasped by the other. The instrument is gradually moved until the entire fundus is brilliantly illuminated.

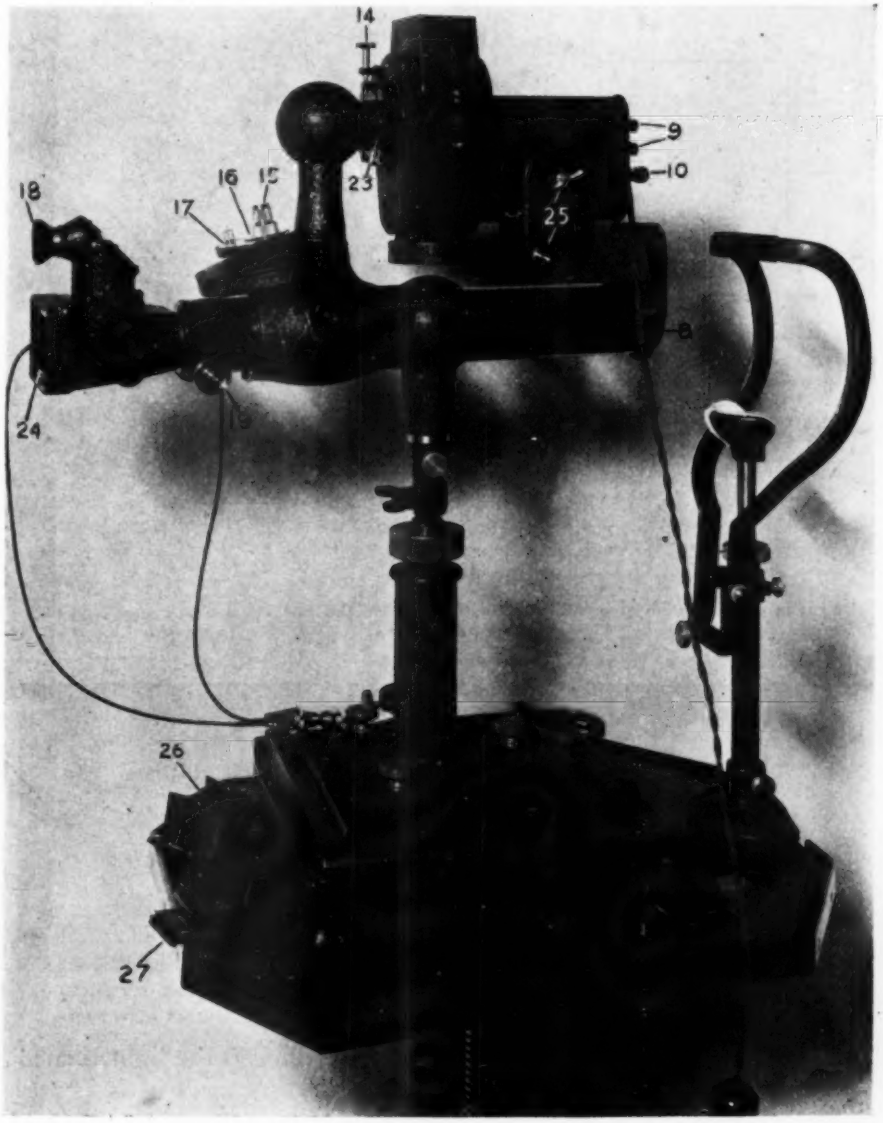


Fig. 2.—Opposite side with 25, the automatic clock work attached to the carbon feeds.

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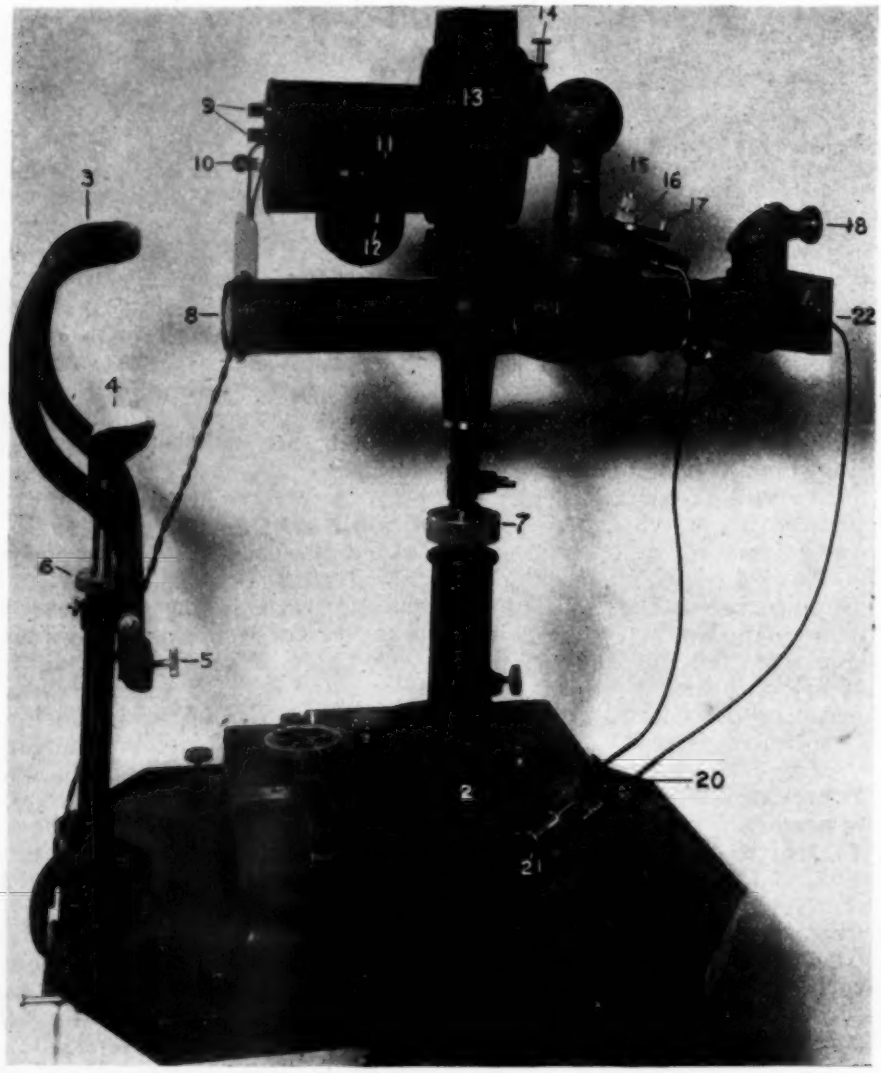


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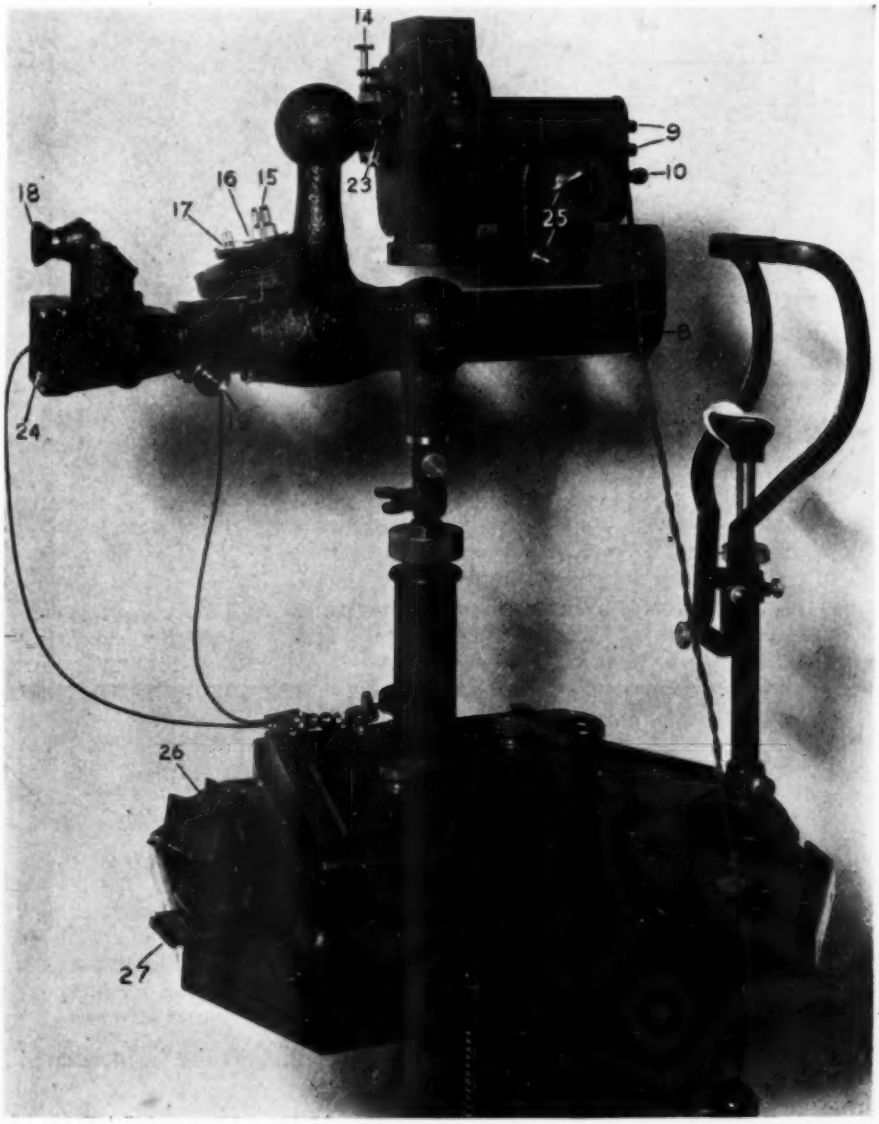


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If the optic disc is not in the nasal side of the photographic field, which

is visible on the ground glass plate 28, the patient is directed to look either more or less to the left side until it is centered. When the field desired is hard and the photograph is instantly made. The patient is then advised to close her eyes for a moment. The exposed plate is covered, the current

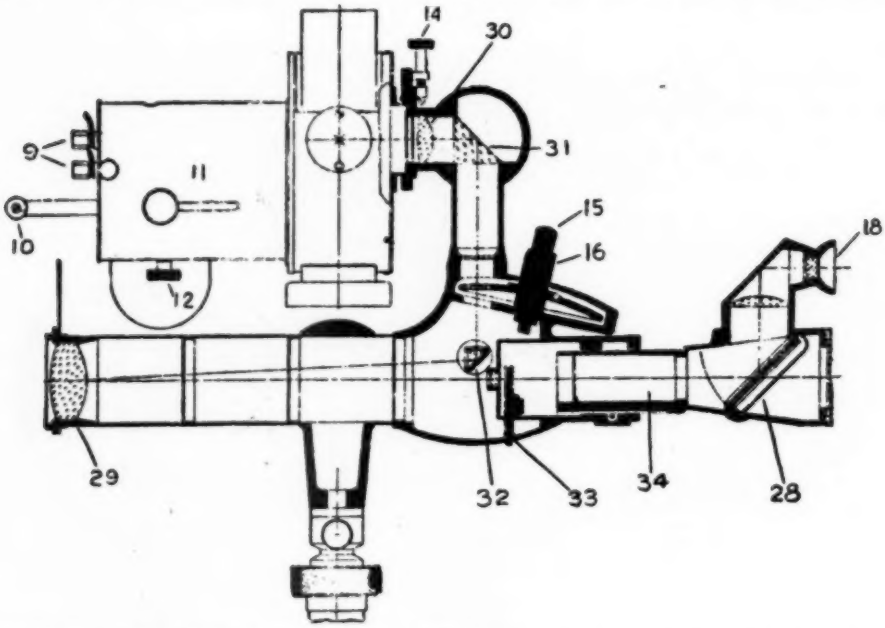


Fig. 3.—Diagram of the system of condensing lens and prisms and the schematic passage of light to and from the patient's eye.

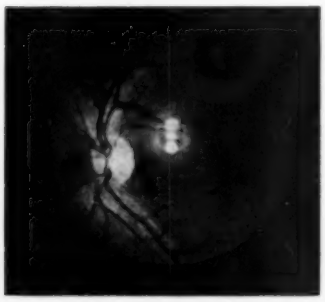

Fig. 4.—Photograph of a left normal fundus.

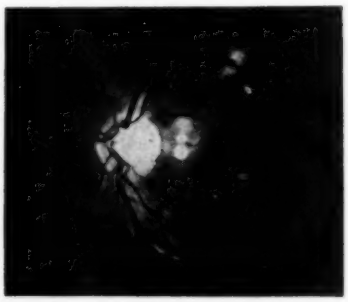

Fig. 5.—Photograph of left fundus with a large central excavation of the optic nerve.

illuminated, the fundus is accurately focused by means of 19 moving 34. The most intense illumination is obtained after the fine adjustment of the carbons by manipulation of 11. When all is in readiness, that is when the field desired is brilliantly illuminated and accurately focused, the plunger 21, which actuates both releases, one to the shutter 16 and the other forcing 22 the ground glass plate upward exposing the photographic plate, is pressed switched off and the light turned on in the room.

The view of the left fundus is obtained by reversing the direction for the fixation of the eye. If special portions of the fundus are desired they are obtained by directing the patient to look in suitable directions to make that part of the retina visible. The retina in high hyperopia, high myopia, or pathologic conditions producing a marked change in the retinal level,

cannot be accurately focused without the aid of auxiliary lenses. These, —1.50, —.75, +1.50 and +.75, are placed in revolving disc 33 and may be easily swung in position as needed.

Among the advantages of the Nordenson camera are its comparatively small size, which makes it portable and easy to manipulate. The intense light under such control that the patient's eye is never in danger. The simplicity of the actual photograph making. The picture is in view until the moment of exposure. The greatest advantage of the instrument is that accurate photographic records of fundus changes enable one to note the progress of disease, something of inestimable scientific value and frequently of value to the patient, a source of great comfort in being able to note the progressive disappearance of the pathologic changes.

The two photographs, Fig. 4 and Fig. 5, show the detail of these pictorial representations.

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## RESULTS WITH INTRACISTERNAL INJECTIONS IN LUETIC OPTIC ATROPHY.

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This paper reports the later results in six cases previously published and in eight additional cases submitted to this treatment. Nine of the cases were followed one year or longer; the others from three to nine months. Results were generally favorable and suggest that such treatment should be tried in cases of tabetic optic atrophy that still have useful vision; altho disastrous results occur in the hands of those not properly trained for the work. From Departments of Ophthalmology and Neuro-Surgery, University of Nebraska College of Medicine. Read at the Sioux Valley Eye and Ear Academy, January, 1927.

In 1923 a series of six cases treated by this method was reported, with a discussion of its possible advantages over other methods of treatment then in use (British Journal of Oph. 1923, v. 7, p. 506). We are now able to report on the condition of most of these cases, after a lapse of three years, with eight other cases treated during this period.

As stated in that report, the intracranial method was adopted following the failure in a fair number of cases of: 1. Intensive treatment with salvarsan and mercury, 2. Salvarsan combined with spinal drainage, and 3. The Swift-Ellis method. There has been very little change in the technic from that reported in 1923. A preliminary hypodermic injection of ¼ grain of morphin sulphate relieves nervousness and reduces the headache following the injection. The dosage of mercuric chlorid should not exceed .5 milligram or .1 c. c. of a 1:200 solution, which is diluted with 15 to 20 c. c. of cerebrospinal fluid. Each injection is followed the next day by an intravenous injection of neoarsphenamin. Three to five cisternal injections have been given, but more than three should only rarely be advised, and these should be given six weeks apart. Where, as at first, the intervals have been made shorter than this, excessive nervousness and general weakness were seen in several patients. Mercury inunctions and potassium iodid are given in the intervals.

We have heard of a few serious complications following cisternal injections and of two fatalities. In these two cases, the injections were given by a man untrained in the technic of cisternal injection. We have had no fatalities, and no serious complications. In several cases the symptoms of meningeal irritation have been rather marked, a hyperthermia especially being noted, and in nearly all, a fairly severe headache is complained of for twenty-four hours. These symptoms have cleared up within a few days in all our cases, however, except for the weakness mentioned above, which has persisted a somewhat longer time. The

usual stay in the hospital is twenty-four to forty-eight hours. The injections are begun as soon as the diagnosis is made, where possible, as the earlier stages are naturally the most favorable for deciding the value of any treatment. Ventricular injections used in the first two cases, were given up in favor of the simpler cisternal route.

Of the six cases in the previous series, CASE 1 had shown marked improvement following four intraventricular injections by Dr. George F. Suker in 1921. Vision improved from 20/200 and 20/50 to 20/20 each eye and the fields, while remaining much smaller than normal, definitely increased in size. When last seen, three years after his first visit, vision and fields had remained the same, and the spinal fluid, when tested six months before, was negative. In spite of the favorable prognosis given on the basis of this data, he became very nervous and depressed and five months later, following the sudden death of a brother, committed suicide.

CASE 2 had shown a slight improvement of central vision and fields, enabling him to resume his work, following three intraventricular injections. The original vision was R. E. 18/200, L. E. 2/200. Girdle pains and difficulty in urination had cleared up and his spinal fluid was negative in 1923. In July, 1926, five years after his first injection, vision was R. E. 19/200, L. E. 2/200, the same as in 1923, fields were the same, and he has shown no neurologic or other symptoms attributable to the disease.

CASE 3 was the only one whose vision had failed during and after treatment. Originally, R. E. = counting fingers, and L. E. = 20/30, it had diminished in two years to R. E. = light perception, and L. E. = 20/200, but had remained stationary for six months. The patient is working as a night watchman.

CASE 4 had shown improvement in vision in the left, or poorer eye, from 8/200 to 20/70 following the first cisternal injection. This lasted two months, but then vision and the field in this eye both failed, in spite of two further injections and intensive general treatment. His right eye never showed any involvement and the vision and fields were normal at the last examination two and one-half years after treatment was begun.

CASE 5: This patient had lost the sight of the right eye very rapidly, no light perception being present at his first visit. Vision in the left eye was 20/20 but an upper temporal field defect was present. This improved slightly following five cisternal injections, and central vision remained 20/20. The spinal fluid was very weakly positive a year later, the cell count being normal. In May 1926, three years after his first visit, vision of the left eye is 20/20, the same as in 1924, with slight temporal limitation of the field. His last spinal fluid and blood Wassermanns were both negative.

CASE 6, who had shown improvement in the field following three cisternal injections, was lost sight of and cannot be traced.

Of these six cases, followed for three to five years, one failed gradually in spite of treatment, remaining stationary, however, with vision of 20/200 after three years; one was lost sight of, and the other four remained practically stationary after the course of injections, with useful vision in all cases.

The cases in which treatment has been begun since 1923 were nearly all seen fairly late in the disease, and in only six cases was vision better than 20/200 in the best eye when treatment was begun. Several patients with vision below 20/200 in the best eye were not advised to take treatment; and one patient with better vision than this, but with a blood pressure of two hundred and fifty was considered a poor risk and was not given injections.

CASE 7. Mr. W. This patient, a man of 31, was first seen in December, 1924. Vision had been failing rapidly for five weeks and he had been given salvarsan injections elsewhere. Vision was R. E. 5/200, L. E. 20/30. Both nerves were very pale, the left only slightly less so than the right. The pupils reacted normally and the only

other neurologic signs were absence of the right knee jerk and weakness of the left. The peripheral fields were fairly normal, the poor vision being accounted for by a right central scotoma. Cisternal injections were advised, but the patient disappeared for seven months, during which time he had received intensive general treatment. Vision was now R. E. 4/200, L. E. 20/200. He received several Swift-Ellis treatments by Dr. Phillip Levey, and then consented to a cisternal injection. This was repeated in three months, when he next returned, and a third injection was given six months later. Before this injection vision was R. E. 4/200 and L. E. 19/200 and the fields had shown marked contraction. The loss of vision and fields continued after the third injection, the reaction from the procedure apparently hastening it. When last seen (August 6, 1926) vision was R. E. shadows, L. E. 13/200. The regular routine could not be followed with this patient, whose visits could not be controlled, and he passed long intervals without any treatment. His spinal fluid Wassermann never cleared up entirely, being two plus at the last examination.

Case 8. Mrs. H., a woman of 52, was first seen May 15, 1924. She did not know of any specific infection. Her vision had been failing for five months, and was now R. E. 1/200, L. E. 20/70. Blood Wassermann was four plus (spinal fluid). Knee jerks could not be elicited and there was slight pupillary inequality. The right nerve was pale, the left only slightly paler than normal. Peripheral fields were almost normal, except for the right eye, which did not distinguish red. Central scotomata were present. Between May and October, 1924, she was given three cisternal injections, eight intravenous salvarsans and a good deal of mercury and potassium iodid. Spinal fluid, which had shown a cell count of 29 with positive Wassermann, became negative after four months, with cell count of one. Vision one year after the first examination was R. E. 7/200, L. E. 20/200, with peripheral fields the same. One year later she reports by letter that vision is about the same.

Case 9. Mrs. H., aged 36, was referred by Dr. Parker Heath of Detroit in February 1925. The right eye began to fail two years before, and she had been given intensive intravenous salvarsan and several intraspinal injections. Sight had continued to fail during this treatment. Vision was R. E., no light perception, L. E. 20/50 minus one letter. Neither pupil reacted to light and both nerves were very pale. The left field was very small, the defect almost reaching the center above. Two cisternal injections were given, in February and May 1925, and mercury and K. I. kept up in the intervals under Dr. Heath's supervision. In August 1925, six months after her first visit, vision was R. E., no light perception, L. E. 20/50+1. The fields were the same as when first taken. A further cisternal injection was advised, but refused, and the patient was not seen again. She was very nervous and had suffered with severe headache for twenty-four hours following each injection but showed no unusual reaction.

Case 10. Mr. R., aged 29, referred by Dr. Irish of Forest City, Iowa, had noted failing vision for nine months. Dr. Irish reported positive blood and spinal fluid Wassermanns. Vision was R. E. 20/200, L. E. no light perception. Both nerves were very pale. The right field showed an almost complete temporal hemianopsia, the center being involved in a relative scotoma. No other neurologic signs were noted, and an X-ray of the sella was negative. Spinal fluid Wassermann was positive. History of a probable luetic infection ten years before was given. Three cisternal injections were given in May, July, and September, 1925. In July 20/100 was read slowly. In December 1925 the condition was about the same as at first, vision being right 20/200. Following a fourth injection at this time, a slight decrease in vision occurred, to 10/200, and later reports indicate further failure of vision to light perception with correct projection. In this case, the spinal fluid was never

cleared up by treatment, showing in December 1925, 18 cells per c. mm. and a 3+ Wassermann.

CASE 11. Mr. W., aged 45, was first seen July 17, 1925. He gave a history of possible specific infection, twenty-five years before. Vision had been failing in the right eye for about one year. He is positive he could still read with this eye one year before. Slight urinary incontinence and some vague abdominal pains had been noted, and neither pupil reacted to light. Both nerves were pale, the right white. Vision was R. E., light perception, L. E. 20/30 with correction. The left field showed a loss of almost all the upper half for colors, and concentric contraction for white. The spinal fluid showed 136 cells per c. mm. and Wassermann 4+. Three cisternal injections were given, in June, August, and November, 1925. In September 1925 vision and fields were the same as at his first visit.

CASE 12. Mr. R., was first seen by Dr. H. Gifford in 1913, when he was 29 years old. Vision was R. E. 20/30, L. E. 20/100. Inunctions were prescribed and two injections of salvarsan were given, but the patient was soon lost sight of. He returned to us in February 1925, vision having failed more rapidly in the past six months. It was now R. E. 20/200, L. E. 2/200. Some old central chorioretinitic changes were present, so that the case could not be considered one of uncomplicated simple optic atrophy. Since blood and spinal fluid Wassermanns were both markedly positive, it was felt that cisternal injections might justifiably be combined with general treatment. Cisternal injections were given in February, March, August and October, 1925, combined with inunctions and K. I. In February 1926 vision was R. E. 20/200, L. E. 1/200, with the fields the same as a year before. The spinal fluid shows nine cells and the Wassermann is still positive, but the Lange curve suggested to the pathologist a cured but Wassermann fast condition. Bismuth and sulpharsphenamin are being tried to clear this up.

CASE 13. Mr. T., aged 33, was seen in January 1925, when a diagnosis of probable specific optic atrophy was made on the base of history, rigid pupils and pallor of the right disc. Vision was R. E. 20/50, L. E. 20/15. Cisternal injections were advised but refused, and the patient was not seen for eighteen months, when vision was R. E., L. P.; L. E. 20/15. The right nerve was white, the left normal in color with the field normal. Two injections were given, six weeks apart, and when last seen, four months after the first injections, vision was R. E., counting fingers at one foot, L. E. 20/15. He was receiving mercury, salvarsan and K. I. at home. The spinal fluid Wassermann was still positive, with seven cells per c. mm., at last examination. He thinks vision has improved in the right eye.

CASE 14. Mr. N., aged 53, first noticed poor vision in the right eye three months ago, which has progressed gradually up until the present time. Vision is R. E., counting fingers at one foot, left eye 20/20. The visual fields of the left eye are normal. The history of specific infection was negative, blood Wassermann two plus. Cisternal injections were advised, but delayed three months, when the condition was the same as at the first examination. Injections were given June 24, 1926. and August 18, 1926. Following the last injection the patient complained of headaches and general weakness which persisted for two or three weeks. At examination, four and six months after the first injection, vision was the same as at first, right counting fingers at one foot, and L. E. 20/20. Visual fields were the same. Since there has been absolutely no progress in this patient's visual defect, he is being kept on small doses of mercury and potassium iodid. Spinal fluid examined two months ago gave a weakly positive Wassermann, but showed only three cells per c.mm. and normal globulin.

These results, as seen in the table, have not been particularly dramatic, except in Case 1, where marked improvement occurred and was maintained till death. In five others, slight

improvement occurred, chiefly in the fields, and was maintained during observation. In five, the condition of the better eye remained the same. In four, a diminution of vision occurred. In only two did the disease progress so that a vision of less than 19/200 was present in the better eye. None are blind. While the cases with fairly good peripheral fields but central scotomata, such as Cases 3 and 8, have apparently responded least favorably to treatment, in that central vision has failed further after it was begun, the fields in these cases have remained good, and after a period of failure, apparently a stationary condition has been reached and maintained for fairly long periods with useful vision. Usually the spinal fluid cleared up under treatment, but where it did not, as in cases 7 and 10, a more extensive nervous involvement seemed to be present and the results were not so good. These results are to be compared, in our experience, with a fair number of cases treated by intensive salvarsan and mercury, salvarsan and spinal drainage, and intraspinal salvarsan, nearly all of whom are practically blind, where their fate is known. The only exceptions to this is the patient referred to in the previous report, who was treated intraspinally, and who has retained a vision of 20/30 in one eye for six years.

A summary of cases reported by other authors was given in the previous paper. To this may be added a few reports made since that time. Of the newer antisyphilitic drugs, some of which are advocated especially in neurosyphilis, none have apparently been particularly efficacious in optic atrophy. Tryparsamide was at once ruled out by the occurrence of optic nerve degeneration following its use, as reported by Moore[1], Woods[2], and others. Liebermann[3] treated four cases of optic atrophy with silver salvarsan. In one of these, vision remained stationary for one and one-half years, but then further failure occurred. No effect was noted in the three other cases. Better results are reported with the use of bismuth preparations. Herman[4] in a series of eight cases, reports appreciable improvements in vision by the use of bismuth. One of the cases, however, had interstitial keratitis, and spinal fluid examinations are not reported in any cases, so it may be doubted whether all were cases of true tabetic atrophy. Also no case was followed longer than nine months and most only three to five months. Rentz[5] reports three cases treated by spirobismol. In one vision failed from 5/20 to counting fingers during five months but remained the same (5/7.5) in the better eye. A second case remained the same for six months. A third showed improvement from 5/10 to 5/7.5 in one eye, with a slight failure in the other during one year.

Nelson[6] reports one case which remained stationary for a year on Curie's "Lues-serum." Abadie[7] reports some improvement of vision, maintained for three months, by the injection of atropin in the orbit for its effect in relaxing vascular spasm. No details are given. Zimmerman[8] in a careful report on ten cases given general and intraspinal treatment, notes improvement of vision in two cases. One of these improved from 20/70 to 20/30 and held this vision for three years, while in the second 20/20 was maintained in the better eye for two years, tho with some contraction of the fields. In two others a temporary improvement occurred, followed by a progress of the atrophy. In one case with vision of 20/25 in each eye, this decreased to 20/70 and 0 in eight months, and in another with 20/40 in each eye, vision was 15/200 in each eye after two months. In one case with vision of 20/40 in each eye, this was reduced to 15/200 in each eye after two months, while another with 20/25 in each eye was left with 20/70 and 0 in eight months. These cases received Swift-Ellis treatments, which are thought to have hastened the process in the last mentioned case. Two other cases were treated by intravenous salvarsan and mercury alone, both showing rapid progress to hand movements and light perception in one case after three months; and light perception in each

eye in the other after six months. A third case which received no treatment progressed from 0 and 20/40 to complete amaurosis in six months. The author is very conservative in estimating the value of his treatment, too pessimistic, it seems to us, when he states: "The prognosis of genuine optic atrophy is still about as it was in the prearsphenamin era." Granted the difference in individual cases, the fact that several of his cases were apparently arrested under Swift-Ellis treatments, while the three given intravenous or no treatment all did badly, may point to some difference in the value of the two methods. (In two others an improvement occurred but was only temporary and was followed by a progress of the atrophy.)

Stokes and Shaffer[9], however, after using the Swift-Ellis treatment state: "In ten cases of primary optic atrophy we were unable to observe a single improvement. Occasionally, in the very earliest cases, it seems possible to arrest the process, but the far more usual rule is a steady progress of the impairment, definitely accelerated at times, we believe, by the use of salvarsan." O'Leary and Nelson show in their table one case of optic atrophy as much improved, and five cases with no change in the atrophy following Swift-Ellis treatments. No details are given. Solomon[10] reports a case of optic atrophy treated by cisternal injections of neosalvarsan and spinal drainage, whose spinal fluid was cleared up and in other neurologic cases, cisternal injections sometimes achieved this result after other methods had failed.

Bruner[11] in a recent paper to appear shortly in the Ohio State Journal, of which he very kindly sent us a manuscript copy, reports three cases of primary optic atrophy treated by the Swift-Ellis method. One has held normal vision in one eye with a good field for 8½ years, another has vision of 6/5 in one eye, with some contraction of the field after five years, the other eye in both cases being practically blind from the start. The third case had showed very rapid progress before treatment was begun, which went on to total blindness, in spite of treatment. In the first two cases considerable improvement in the fields followed intraspinal treatment. Bruner believes such patients should not be left to general treatment, but tried on intraspinal treatment at once.

A method of treatment which has seemed to promise much in paresis, that of malarial inoculations, has been given a fairly extensive trial in only one large eye clinic, so far as we can learn. Fischer-Ascher[12] from the Prague clinic reports on eighteen cases of tabetic optic atrophy so treated. Of the group with vision better than 5/20, five have remained stationary for twelve, five, five, four, and two months respectively. One failed during a year. Of those with vision below 6/60 but with form perception, five remained the same, one improved slightly, and one was worse. Those with light perception only failed further except one, who was the same after one year. In discussing this report, Pötzl[13] is in favor of malaria combined with salvarsan in early cases. Salus saw the atrophy progress during the malarial treatment in two cases, while their paretic symptoms improved. Hessberg[14] in a series of thirty cases of latent and neurosyphilis treated by malaria, saw no effect on the optic atrophy where it was present. Behr[15] followed nine cases after malarial inoculations and saw no improvement in vision in five, who were blind. In two other blind patients, the pupillary reaction to light returned but no vision, while a third regained projection of light. Another failed rapidly from 6/7 to 3/60. He believes the method is dangerous, where useful vision is present. Behr has concluded that no active treatment is justified in tabetic optic atrophy, basing this opinion on six cases showing rapid loss of vision on mercury and salvarsan, one on bismuth, and two on nonspecific protein injections. He does not believe the results reported justify a trial of intraspinal injections and does not mention intracranial injections. His conclusion is also based on his conception of the pathology of optic atrophy, as due to

a disturbance of nutrition of the nerve, as a result of occlusion of the capillaries and sclerosis of the glial membrane surrounding the nerve fibers. He dismisses the clinical evidence of various reporters as affording no proof of the efficacy of any treatment, without, however, giving it any detailed criticism.

Besides the case of Solomon mentioned above, only one report was seen of the effect of cisternal injections in optic atrophy. Pfister[16] among five cases of neurosyphilis treated by cisternal injections of neosalvarsan saw one case of optic atrophy who recovered vision of counting fingers in an eye which had had no light perception.

CONCLUSION: It seems to the authors that a certain body of evidence favorable to the subdural methods of treatment is accumulating; and that because of it, one is not justified in taking a "hands off" attitude toward cases of tabetic optic atrophy, where useful vision is still present. The evidence in favor of intravenous therapy above is certainly not very strong and we would agree with Fordyce, that "a patient with a progressive optic atrophy and a positive spinal fluid is not receiving proper or adequate treatment by intravenous treatment alone." Intraspinal treatments have apparently improved a few cases and arrested a good many. In our experience cisternal injections have seemed to present distinct advantages over intraspinal treatment.

| | Vision at first treatment | Last Vision |
|---|---|---|
| | Case followed 5 years. | |
| Case 2 | R. 18/200<br>L. 2/200 | R. 19/200<br>L. 2/200 |
| | Followed 4 years. | |
| Case 4 | R. 20/20<br>L. 8/200 | R. 20/20<br>L. hand movements |
| Case 3 | R. C. F.<br>L. 20/30 | R. L. P.<br>L. 20/100 |
| | Followed 3 years. | |
| Case 1 | R. 20/200<br>L. 20/50 | R. 20/20<br>L. 20/20 |
| Case 5 | R. No. L. P.<br>L. 20/20 | R. No. L. P.<br>L. 20/20 |
| | Followed 2 years. | |
| Case 8 | R. 1/200<br>L. 20/70 | R. 7/200<br>L. 20/200 |
| | Followed 1½ years. | |
| Case 7 | R. 4/200<br>L. 20/200 | R. Shadows<br>L. 13/200 |
| | Followed 1 year. | |
| Case 10 | R. 20/200<br>L. No. L. P. | R. Shadows<br>L. No. L. P. |
| Case 12 | R. 20/200<br>L. 2/200 | R. 20/200<br>L. 1/200 |
| | Followed 9 months. | |
| Case 9 | R. No. L. P.<br>L. 20/50—1 | R. No. L. P.<br>L. 20/50+1 |
| | Less than 9 months. | |
| Case 11 (3 months) | R. L. P.<br>L. 20/30 | R. L. P.<br>L. 20/30 |
| Case 13 (4 months) | R. L. P.<br>L. 20/15 | R. C. F. at 1 ft.<br>L. 20/15 |
| Case 14 (6 months) | R. C. F. at 1 ft.<br>L. 20/20 | R. C. F. at 1 ft.<br>L. 20/20 |
| Case 6 (3 months) | R. 20/30<br>L. hand movements | R. 20/30<br>L. hand movements |

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# DRUSES APART FROM THE NERVEHEAD.

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In the case here reported the mass of hyaline nodules present were quite separate from the nervehead and were not situated in the macula. The patient, nine years old, had full vision and no history of ocular disease.

Altho druses* are frequently noted in masses on the nervehead and, at times, as small yellowish white spots resembling rice grains distributed thruout the fundus, they are more uncommonly seen in large conglomerate clumps divorced from the optic nerve.

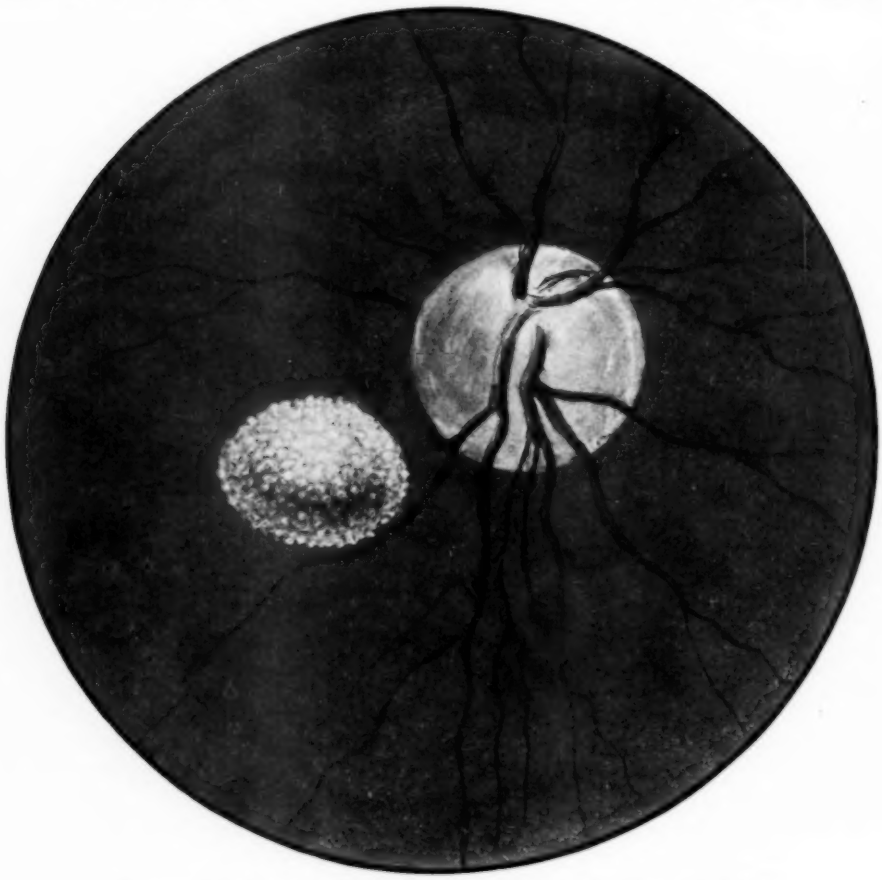

Fig. 1.—Mass of druses apart from optic nerve and macula. (Scarlett).

The case here reported was examined in the service of Dr. William T. Shoemaker, at the Pennsylvania Hospital, Philadelphia.

The patient was a nine year old male, of Russian Jewish extraction, who came to the clinic because of a refractive error. On routine ophthalmoscopic examination the right eye presented a cone shaped, whitish gray, translucent mass of crystals, situated about ¼ disc diameter distance from the lower temporal edge of the disc. The tip of the cone extended forward into the vitreous, about three diopters from the base level of the fundus. Pig-

*Since the word "druse," due to its various meanings other than ophthalmologic, might be misconstrued in this paper; I should explain that it refers here specifically to "hyaline bodies."

ment was absent, and the vision was in no way disturbed, the right equaling that of the left eye, which was normal.

A diagnosis of druses was made.

It is generally believed that druses are derivatives of the lamina vitrea of the choroid. Fuchs[1] says they are crystalloid outgrowths of this membrane, over which pigment epithelium has been destroyed. These crystals probably arise from the pigment epithelium. At times the crystals appear like grains of rice scattered thruout the periphery, but occasionally are found in the central area of the fundus. They usually occur in the elderly. This condition may resemble Tay's choroiditis, without the presence of any inflammation of the choroid.

From their investigations, Lauber and Kaugi[2] decided that pigment epithelium produced druses and other hyaline like substances.

According to Collins and Mayou[3] the membrane of Bruch consists of two layers, an outer and an inner. The latter is mainly composed of pigment epithelium during embryonic life. The capacity of pigment epithelial cells for producing hyaline tissue ends when the eye becomes developed. Under pathologic conditions they reacquire this ability, and nodules may be found on the inner surface of Bruch's membrane. They occur in connection with various atrophic conditions of the choroid and, at times, as a senile affection seen mostly around the macula and appearing as small oval or circular pale yellowish dots. The condition has been termed central guttate choroiditis, and more recently, senile infiltration of the retina.

In rare conditions hyaline nodules are seen on the edge of the disc at the termination of the elastic lamina. These nodules are different from other hyaline degenerations seen on the nervehead. The latter are not derived from the lamina vitrea and have no connection with Bruch's membrane. The differentiating factors are, the situations at the margins of the disc, and the continuation of the lamina vitrea.

According to Frost[4] they are likened to small bunches of grapes composed of gray or bluish gray glistening globules, and have generally been considered to be of the same nature as the outgrowths from the lamina vitrea. As they are usually situated on the edge of the disc, they have been thought to be connected with that structure. However, microscopic examination of two papillae in which druses had been seen with the ophthalmoscope, showed them to be posterior to the lamina cribrosa. From these cases they would appear to be composed of material similar to the hyaline substances met with in the outer coat of blood vessels, and to result from a degenerative change in the interstitial tissue of the nerve and papilla. Vision is not impaired, unless the nerve fibers are pressed upon.

Elschnig[5] reported the case of a man 66 years old, with a tumor like thickening in the macula of each eye. It was the second of its kind examined histologically. The mass was a densely placed, yellowish brown druse in each eye. Three months later there developed in the macula of the right eye an increasingly prominent white focus, in the center of which newly formed vessels were seen while the edges were pigmented. No detachment of the retina was present.

Histologically the growth consisted of richly vascularized connective tissue with hyaline degeneration. There were glia and pigmented epithelium proliferation present. The process seemed to have developed in the retina, probably in the connective tissue of the retinal walls and in the glia. The whole was looked upon as a degeneration, caused by arteriosclerosis of the ciliary and choroidal vessels.

Detachment was present in two cases collected. In that of Klainguti[6] there had been a detachment with reattachment and the formation of striae. On examination after death, hyaline excrescences were found in the lamina at the site of the detachment. Hanssen[7] examined microscopically a case of spontaneous detachment of the retina, showing fibrillary formation in

the periphery of the vitreous, which undoubtedly caused traction on the retina. The uvea showed infiltration, connective tissue proliferation and degeneration, pigment epithelial changes and druse formation. Degenerative changes were found in the retina.

Altho druse has been frequently observed on the nervehead, Hesse[8] saw a case with one in each macula, in a woman 80 years of age. Three years after the first examination, he found a hemorrhage with an increase of the condition. This raised the question as to whether druses were as harmless as they were originally thought to be, or whether hemorrhages were not the result of further evolutions of primary formations.

SUMMARY: According to most authorities, druses are derived from the lamina vitrea and are more prevalent in the elderly, being more commonly seen in the form of yellowish white spots or as masses on the edges of the disc. Occasionally, detachment of the retina and, in rare instances, hemorrhage may be associated with this condition. Druses rarely affect the vision. Exceptions are quoted above.

In the case here reported druses occurred in a young male; were in the shape of a large conglomerate mass of translucent crystals, situated between the nervehead and the macula, and had an elevation into the vitreous of about three diopters at its highest point.

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## CENTRAL CHOROIDITIS DUE TO TOXEMIAS OF PREGNANCY.

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CHICAGO, ILL.

In the case here reported, dimness of vision began in the second month of pregnancy, which was terminated in the fourth month. Vision afterward improved to 4/10 in each eye. Marked permanent changes were found in the macula of right eye only.

The case here reported is of interest because:

1. There was no similar case found after extensive search of American and foreign literature. 2. It supports the theory that the kidney need not be affected in toxemia of pregnancy. 3. There was a low blood pressure consistently thruout the case. 4. There was, apparently, a selective action of the toxin on the macula and papillomacular bundle. 5. The eye was affected so early in pregnancy (second month). Valude's case was in the first month. I was fortunate in having seen the case practically at the onset, and was able to follow the daily sequence of fundus changes.

CASE: On October 10, 1925, patient entered the hospital. She was tall, emaciated, and had lost twenty pounds within two months. Three months pregnant. Complained of backache, headache and dimness of vision, which began at the second month of her pregnancy. No dizziness. Vision at this time was fingers at one foot.

Personal and family history negative. No lues. No tubercle bacilli. Roentgenogram: Bones of skull normal in outline and density. No apparent tumor formation. Sella abnormal in that the anterior and posterior clinoids were hypertrophied, with narrowing of the fossa and loss of the superior opening to a great extent. No

apparent tumor formation in the region of the sella or pituitary body. Sinuses negative.

*Laboratory Findings*: Urine normal in quantity, acid. Sp. gr. 1016. Urea in one specimen 8.5%. Uric acid crystals and amorphous phosphates in excess. Urine, not a catheterized specimen, showed pus cells (probably vaginal) which gave faint trace of albumin to chemical examination. No sign of albumin after a few vaginal douches. No sugar. Spinal and blood

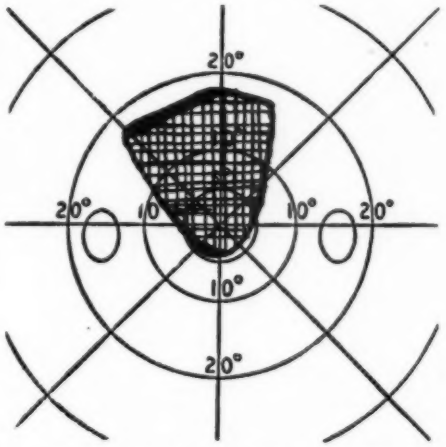


Fig. 1.—Scotoma due to central choroiditis (Mesirow).

Wassermann negative. Blood pressure; Systolic 105-110. Diastolic 70.

*Eye Examination*: On October 30, 1925, when I first saw the patient, the pupils were dilated, reacted to light and accommodation. O. D. Disc edges were blurred, the caliber of the vessels narrow, appeared like an acute functional vasoconstriction. At the macula was what appeared to be a fresh exudate 2 mm. round involving both the retina and choroid. O. S. There was a thin haze on lower part of cornea. Nervehead was blurred. No pathology was visible at macula. No further change occurred in this eye thruout entire case.

November 1, 1925. O. D. A number of pinhead size exudates showed around macular exudate. The central exudate increased in size rapidly from day to day. About the sixth day a ribbon like pigment area, 3 mm. wide began to form between the central exudate and the disc, along the papillomacular bundle. This pigmentation remained when patient was discharged on January 4, 1926.

Her headaches stopped shortly after she was put to bed and she was quite comfortable. The eye pathology progressed in spite of the intensive treatment by elimination, sweats and medication, so it was decided to empty the uterus. This was done on November 9, 1925, at which time her vision was so poor she could not count fingers close to her eyes.

On November 15, 1925 the progress of the disease was distinctly checked. The exudate at the macula had ceased to spread, pigment deposits had begun forming at its edges. The disc had become less hazy, vision began to improve. The left corneal haze decreased, and disappeared entirely upon her discharge on January 4, 1926. Treatment by elimination and mercury had been continued until her discharge, when all active progress had subsided and vision was 4/10 in each eye.

On March 22, 1926 she returned for observation. The right eye was quiet. The ribbon like pigmentation along the papillomacular bundle had been absorbed, the disc edges were well defined, the vessels were normal in caliber, vision was 5/10. The fields taken at this date showed central and pericentral absolute scotoma for form and color. (See Fig. 1.) Blind spot was normal. Field about 1/3 contracted for form and color. The left eye was practically normal for form and color. The cornea was quite conical.

The accompanying drawing, Fig. 2, shows the appearance of the fundus on March 22, 1926. Just below the macula is an irregular white area about two-thirds of the size of the disc, which represents a retinochoroidal atrophy. A temporal retinal artery runs over this, so it is probable that the atrophy of the retina is not complete, a supposition which is supported by the retention of 5/10 vision. At the upper margin of this area is a deposit of pigment, which extends a short distance into the otherwise normal tissue.

This is the remains of the ribbon like pigment area described above. Inward, and slightly downward, from this area are three small yellow areas of choroidal infiltration, separated from the atrophic area by a deposit of pigment. The temporal margin of the disc shows a deficiency of choroidal pigment, and at places in the fundus, the choroidal vessels are distinctly seen.

Fig. 2.—Choroidal atrophy and pigmentation below macula following choroiditis due to toxemias of pregnancy.

It has been reported that the removal of spinal fluid in such cases has been beneficial in beginning eye changes. In this case it was twice taken for Wassermann. An additional amount was removed, with no apparent affect on the progress. Probably the condition was already of too long duration. None of the treatment instituted in this case was of any avail. The progress of the disease was stopped only when the uterus was emptied.

Recent investigations suggest that toxemias of pregnancy are due to autolytic products liberated in the early stages of placental death. On the above premises and the fact that during gestation every type of embryologic cell is present in full activity, surrounded by an exceedingly vascular area, can we not suspect that a great variety of toxins are formed, and that some may have a specific or selective action on the various tissues of the eye?

Our present knowledge of general

pathology of this condition contradicts the old theory that the toxemias are of nephritic origin. In fact, the kidney is often the last organ to be involved even in the most severe cases. Cloudy swelling and fatty degeneration of the liver are the first changes, and often the only ones, found.

The results of blood analysis support neither the theory of acidosis nor that of protein metabolism derangement. There is not enough variation met with in autointoxication and normal pregnancy to support the acidosis theory. There is usually a retention of urea and uric acid in the blood and a decrease of elimination of nitrogenous waste material in the urine. In the case reported there was an increase of urea and uric acid in the urine, showing kidney elimination hyperactive rather than impaired.

It seems to me that it is unfair to the patient to waste time by treatment in the early stages of this type of toxemia, since it is of no benefit. By so doing we not only permit irremediable damage to the eye but increase the patient's chance of mortality. Zentmayer's arbitrary rule appears a very safe one to follow: If retinitis develops before the sixth month, pregnancy should be terminated. If at the eighth month, carry to full term. Between the sixth and eighth month be guided by the visual disturbance. If vision is poor terminate pregnancy.

30 *N. Michigan Avenue.*

# EPIPHORA OF UNUSUAL CHARACTER.

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A woman had epiphora of the left eye when asleep. The lacrimal passages were clear. She had suffered from hyperthyroidism years before. Glasses correcting ametropia, presbyopia and heterophoria, gave incomplete relief. But relief was secured by closing the eye at night. Later the epiphora recurred when she took pills containing thyroid extract.

The patient, a married woman past middle life, came complaining of epiphora at night, limited to the left eye; and of conjunctival irritation. For two years she has been subject to epiphora at night when asleep. She would be awakened and find the left eye watering and feeling decidedly uncomfortable. She would apply boric lotion and get some relief.

There was a history of glasses for many years. The patient denied headache. She was wearing:

O. D. +.75+.37 cyl. ax. 180°⌒pr. 2½ b. down.

O. S. +.75+.50 cyl. ax. 45°⌒pr. 2½ b. up, with + 2.00 added for near.

These were not entirely satisfactory, but the patient, knowing that she had unusually large defects to be corrected, did not expect complete comfort.

Inspection showed no conjunctivitis, and no more hyperemia of the palpebral conjunctiva than is the rule with patients of her age. The lacrimal passages appeared normal, and when the syringe test was applied thru the left lower canaliculus, the solution ran thru freely into the nose.

The right eye was opened slightly wider than the left; and there was a history of exophthalmos of the right eye, but not of the left. Eight years ago the patient spent several months in a hospital under treatment for hyperthyroidism. There was no operative nor X-ray treatment of the thyroids. Rest in hospital resulted in relief. The exophthalmos subsided and the general symptoms likewise.

There was no facial paralysis or paresis. The pupils were normal. Sensation was normal. Measurement of the refraction showed, as a result of several examinations:

O. D. +1.12⌒+.50 cyl. ax. 160°V.= 6/5.

O. S. +1⌒+.50 cyl. ax. 180°V.= 6/6.

Also, the tests of binocular vision showed 8$^{\Delta}$ R. hyperphoria and 8$^{\Delta}$ esophoria. These measurements were not obtained in the beginning, but smaller amounts of both hypermetropia and heterophoria. The increase in the manifest hypermetropia was 0.25 D. and in the heterophoria 1$^{\Delta}$, after wearing a little less than full correction for some weeks.

At the end of two months the eyes had been made fairly comfortable, by correction of the refraction and by prisms for the heterophoria, but the lacrimation of the left eye at night persisted. It was evident that some undetected cause was at work. She was wearing:

O. D. +1.12⌒+.50 cyl. ax. 160° ⌒ pr. 5 b. out and down ax. 40°

O. S. +1.⌒+.50 cyl. ax. 180° ⌒ pr. 5 b. out and up ax. 40°

+2.25 added for near, bifocals.

The 5$^{\Delta}$ prism, base out and down, axis 40° is equivalent to about 3¾ base out with 3¼ base down.

With these there was at times orthophoria; at times a little esophoria and a little R. hyperphoria. At the near there was slight exophoria, or, at times, orthophoria. She could overcome prisms over the right eye base down nearly 6$^{\Delta}$, base up nearly 7$^{\Delta}$, showing that the hyperphoria was of very long standing.

At this time I inquired more fully about the hyperthyroidism than I had at the first visit. A basal metabolism test recently made was reported normal. The patient stated that her eyes had always been rather large (wide palpebral fissure). At the present time the upper lid of the right eye, with the eyes opened in the usual way, would be at the upper margin of the

cornea, the left upper lid just below the upper margin of the cornea. When told to close the eyes gently, as in sleep, there was normal, complete closure. As far as this goes, it is more suggestive of trouble with the right eye than the left. It was the right which showed exophthalmos and the right palpebral fissure is now distinctly wider than the left. There is no lacrimation of the right eye, however.

There was one symptom pointing strongly to the left eye. On looking down, the lids lagged somewhat, the left upper lid to a marked degree (von Graefe's sign).

It seemed not improbable that the lacrimation of the left eye at night was due to exposure from imperfect closure while asleep. This would account for the feeling of irritation and conjunctival discomfort always present at the same time as the lacrimation, and probably the cause of the excessive secretion of tears. There was no evidence of present or past keratitis, no blood vessels in the cornea.

The patient was told to cover the eye in such a manner as to keep it closed during sleep, and report results.

Complete relief followed. There was some difficulty in getting a satisfactory cover. A silk handkerchief or other bandage would slip off and was not comfortable. The most satisfactory arrangement was a small pad well covered with Borofax and held in place by strips of adhesive plaster. After a while the cover was omitted and used only when the lacrimation aroused the patient. This became infrequent, and after a few months the cover became unnecessary.

Not long after this, the trouble recurred. There seemed no reason for this that the patient could suggest. She said she was taking some little pills now and, on further questioning, admitted that the recurrence followed soon after this treatment was begun. She did not know what the pills contained but said that the physician gave them to relieve a lack of energy of which she complained, and which at once improved. Investigation confirmed the very natural suspicion that the pills contained thyroid extract.

Lagophthalmos, with results all the way from conjunctival irritation to corneal ulcers and panophthalmitis, is sufficiently common in hyperthyroidism to be well recognized. It is probably rare for a patient with so little excess of thyroid activity that the exophthalmos, the rapid pulse, and even the basal metabolism and nervous symptoms had disappeared, to show a reaction on the part of the Müller's muscle sufficient during sleep to cause a lagophthalmos, doubtless slight, but enough to produce lacrimation. Even more unusual, the thyroids were so far from overactive that the general condition seemed to the internist to require the administration of thyroid gland. This was prescribed with apparent benefit in every way except to the ocular condition. Under these circumstances one might be pardoned for overlooking, at first, the true cause of the lacrimation.

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# CATARACT EXTRACTION AFTER IRIDOTASIS FOR GLAUCOMA.

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CHICAGO, ILLINOIS.

It might be expected that incarceration of the iris in the scleral wound left by iridotasis might prove an obstacle to cataract extraction. Two cases in which the difficulties due to this condition were successfully overcome are here reported. Read before the Chicago Opthalmological Society, May 17, 1926.

The advisability of employing the iridotasis operation for the control of hyperpressure symptoms, in the presence of a mature or immature cataract, has been more or less questioned. The question, however, involved not so much the ability to control the glaucoma symptoms, but whether the lens could or could not be delivered when necessary, at the same time retaining the iris in its incarcerated state. The discussions presented centered about the ability to complete a corneal incision for the removal of the lens without sectioning the prolapsed iris. It was argued, that if the prolapsed iris was severed from that remaining within the eyeball, the benefits resulting from the iris incarceration might be lost.

This would appear to be a reasonable yet a questionable deduction, and must for the time remain on debatable ground, altho in the two cases here reported no such difficulty was encountered. However, it is logical to expect that even tho the iris were severed, some remnant would remain incarcerated and the resultant picture would probably be that of a badly performed iridectomy, with its more or less beneficial results. Furthermore, it is still an open question whether the benefits derived from the iridotasis operation are wholly due to the seepage or filtration at the point of incarceration, or to the traction on the iris upward which frees the more natural channels of escape.

Altho the writer is firmly convinced that when the spaces or channels leading to the canal of Schlemm have been closed by peripheral anterior synechiae that have existed for some time, they cannot again function normaly, regardless of the measures that may be resorted to; there are, nevertheless, changes in the anatomic status of the iris tissues, secondary to the traction, that must be seriously considered.

In a recent personal communication from Dr. Borthen, he described a very interesting experiment that he performed which is well worth citing, and which leads him to believe that the traction on the iris upward is a more important factor than the subconjunctival drainage in the lowering of intraocular pressure.

In a blind eye which had been subject to chronic glaucoma with a tension of 65 mm. he performed an iridotasis operation so as to exclude filtration. This was accomplished by making an incision in the cornea instead of the sclera and incarcerating the iris into the corneal wound, which consequently was not protected by conjunctiva. To remove every possibility of filtration and to completely seal the wound, the very small incarceration was later cut and cauterized. The result of this experiment disclosed that the tension was reduced, and it has remained so for a number of years.

Altho this ingenious experiment would seem to prove the case beyond question, the writer has seen two cases in which the wound became sealed and the tension went up regardless of the iris traction.

In Borthen's experiment it would seem possible to explain the results obtained on grounds previously suggested. That is, we know that the crypts of Fuchs and the anterior surface of the iris possess absorptive properties which may be termed accessory channels of fluid escape; in an eye that has been subject to excessive pressure over a long period, the iris no longer contracts or dilates with the same freedom or excursion as in the normal. As a result, the iris tissues become more or less fixed and these accessory channels of escape cannot function to their

maximum capacity. When the iris is anchored to a point distant from the normal, the traction exerted on the iris must necessarily change the tissue relations to each other; and in that manner expose iris surface and crypts, that had been previously cramped to such an extent that they could not function normally. In addition, the peripheral anterior synechia may not take in the entire circumference of the drainage angle, and when traction is exerted those parts of the iris not adherent to the cornea would naturally be opened wider, thus aiding fluid escape.

As a matter of fact, it is not at all improbable that the beneficial results obtained from the various glaucoma operations of the past and present may be due to this rejuvenated iris function. To be sure, time may, and frequently does reproduce changes in the iris that existed in the preoperative stage, in which case we have a gradual development of tension and diminution of vision. This may account for our many successful results, regardless of the procedure adopted, which do not appear quite so successful a number of years afterward. This, however, opens a vast field for speculative discussion that cannot be considered in detail at this time. But in the cases here reported some of these factors had to be considered seriously as one of them was of the most treacherous type.

CASE REPORTS.

The first case presented itself on May 5, 1925, with the following history:

O. A., aet. 71: general work and elevator man. About eighteen months ago his right eye was operated for a cataract; various complications followed which eventuated in enucleation of that eye.

At this time (5/5/25) he complained of some pain and redness in the left eye.

Examination disclosed: Right, enucleated and wearing artificial eye. Left, marked conjunctival injection, with small infected chalazia on both lids. A culture was made and a twenty-four hour report disclosed streptococci (nonhemolyzing) and staphylococcus albus.

The chalazia were opened and the conjunctiva treated with the regulation medicaments. He responded very well to treatment until May 18, 1925, when he again presented himself and complained of extreme pain in the left eye for the past twenty-four hours.

Examination disclosed: An acute congestive glaucoma; vision, light perception; tension by Schiötz, 69. He was hospitalized and treatment instituted. In spite of the use of miotics, epinephrin, diaphoresis, etc., his tension could be reduced only to 62 by Schiötz.

May 19, 1925, a posterior sclerotomy was performed as a preliminary step to a more radical operation to be undertaken the following day if necessary. The tension was naturally reduced and the patient free from pain.

May 20, 1925, about twenty hours later, the tension was again very high and the eye painful. It seemed imperative that a more radical procedure be resorted to at once, to relieve the pain and if possible save some vision. In view of the conditions present, i.e., a cataractous lens, an elevated intraocular pressure, a dirty field, and only one eye, the writer felt that the iridotasis operation, permitting the aqueous to trickle away slowly, offered the safest method of attack.

This operation was done the same afternoon without any special difficulty, atropin instilled, and the patient returned to bed. (The usual technic was used.) Two days later, the tension was taken and registered 13 by Schiötz. The case made an uneventful recovery from the standpoint of glaucoma. June 11, 1925: Projection and perception good; extraction advised.

June 16, 1925, culture clean.

A combined extraction was performed, the anterior chamber irrigated, atropin instilled and the patient returned to bed.

It was natural to expect that some difficulties would be encountered during the corneal section. The object in mind was to obviate if posible the de-

struction of the continuity of the incarcerated iris tissue. This was overcome in the following manner: Primary and counter puncture at the limbus was performed and the incision carried upward in the usual manner, until the incarcerated iris was met. Here the cutting edge of the blade was slightly tilted upward so as to pass between the iris and the overlying corneoscleral tissues, and ended in a large flap. It was remarkable how easily this was accomplished in this particular case. The iris was not disturbed. The capsulotome was then used and the lens delivered.

July 2, 1925, the case was discharged and told to report for further observation.

August 19, 1925, he was given a +12.00 lens and told to return in two months for a needling.

October 13, 1925, needling was done.

October 30, 1925, with a +11.00⊂ +1.50 ax. 150V=20/40.—2.

May 12, 1926, tension 16.

The other case was in a woman 64 years of age, in Dr. Herbert Walker's service. She entered the hospital July 18, 1925, with the diagnosis of glaucoma and cataract in the left eye. The history dated over a period of two years, and began with frontal headaches. About one year ago her vision began to fail.

Vision at this time: R. 20/200—glasses 20/30. L. 20/100—glasses 20/100.

Left lens slightly opaque. Tension 47; under eserin was reduced to 15.

July 28, 1925: Iridotasis operation by Dr. Forbush; no complications, atropin instilled.

July 31, 1925: Eye dressed and appears in good condition.

August 7, 1925: Eye dressed; patient feeling comfortable.

August 25, 1925: Culture clean, tension 13. Extraction of the lens by Dr. Forbush, assisted by the writer, no complications.

In this case we were not able to separate the iris from the overlying flap so easily, but quite favorably.

September 10, 1925: Eye free of all glaucoma symptoms, considerable membrane in pupillary area. Patient allowed to go home because of poor general health and requested to return in four to six weeks.

April 20, 1926: In reply to a letter as to her present condition she states that at first she could only recognize lights, but now she sees large objects and is completely free from pain. This patient requires a needling and has not been given her cataract lenses.

To summarize: One may say that if a glaucoma operation is indicated, in the presence of a mature or immature cataract, there would seem to be no contraindications to the iridotasis technic.

*104 South Michigan Avenue.*

# CONGENITAL ANOPHTHALMOS IN A FAMILY OF ALBINO RATS.

ARTHUR M. YUDKIN, M.D.

NEW HAVEN, CONN.

Congenital, complete absence of the eyeball is rare among laboratory rats. Experiments in breeding from a litter thus affected are here reported. Eyeball and optic nerve were absent. Other orbital contents were fairly represented, but the optic foramen could not be recognized. The malformation seemed to have been caused by some toxic agent, introduced into the early embryo from the mother's circulation. From the Section on Ophthalmology, Department of Surgery, Yale School of Medicine.

Few cases of ocular congenital anomalies have been reported in experimental animals. Either the cases are rare, or the observers have failed to investigate the condition. If I were to judge from the thousands of albino rats observed in the laboratory of the Connecticut Agricultural Experiment Station, I should conclude that ocular malformations are rare. Occasionally an animal was found with an ocular defect but it was sacrificed, so as to eliminate any possible chance of transmitting the pathologic condition in the stock which was used for experimental dietary purposes.

Fig. 1.—Anophthalmic rat. Front view.

Fig. 2.—Anophthalmic rat. Side view.

In October 1925, Miss Helen Cannon, of the Experimental Station staff, observed a litter of nine animals which presented peculiar head conformations and ocular malformations. These rats were born of healthy male and female animals, taken from good stock. Unfortunately, five of this family died before any clinical study could be made, but the heads were examined by an attendant who described them as deformed, and observed that there were no eyeballs present in the orbital socket. The remaining four animals, two males and two females, were saved for clinical and breeding purposes; and later sacrificed for a histopathologic study.

In view of the recent evidence that congenital defects may be transmitted either directly or collaterally, it seemed desirable to ascertain whether the malformation just described was transmissible.* The original parent rats, B1760 a female, and B1679 a male, were mated anew and ten young were born. All of them were apparently normal. A subsequent litter of seven likewise was normal. The animals of the last two litters were in turn mated; their progeny was carried into the third generation by inbreeding, but no ocular defects were found in the offspring.

An attempt was made to mate the four blind animals, but without breeding success. It was found that the males were not potent; female

*These experiments were facilitated thru the cooperation of Miss Helen Cannon.

B2670 had no offspring even tho she was mated with five different potent males; on the other hand, female B2668 gave birth to five litters. Owing to the high mortality among the young, only three of the offspring (all dead) were secured for histologic study. The heads were preserved in formalin and decalcified, then embedded in paraffin and sections cut thru the tissue of the socket. The microscopic examination revealed no ocular abnormality.

Fig. 3.—Anophthalmic rat, 60 days old. Front View.

The blind rats, B2668, B2670, B2671, B2672, presented the same clinical picture from early infancy. They seemed to be as healthy as normal albino rats of the same age, until they were sacrificed for histopathologic study. Figures 1 and 2 show the peculiar conformation of the head and the ocular disturbance. Figures 3 and 4 are drawings of animal B2668, at 60 days of age. The distance from the tip of the nose to the eyelids was much shorter than that of a normal animal of the same age and size. The rest of the head was considerably more spherical than normal. The ocular tissue was sunken into the socket, the lids were small and narrow and the palpebral fissure short. The cilia present in the upper and lower lid margins were scanty and badly formed. The edges of the lids were turned in, giving the appearance of an entropion. On spreading them apart, a gelatinous secretion was found in the fissure. Enlargement of the palpebral fissures by an incision failed to reveal signs of an eyeball in the orbital sockets of any of the animals examined.

The conditions here described are outspoken instances of anophthalmia, a condition in which no vestige of the eyeball is found, in contrast to those cases which are diagnosed anophthalmia clinically, that exhibit rudimentary eyes, possessing epiblastic and mesoblastic structures, or mesoblastic tissue alone.

Examination of the anophthalmic

animals revealed nothing pathologic in the abdomen or chest, except that rat B2670 showed an enormously enlarged colon. They were injected with a solution of Zenker's fluid, by means of a needle inserted into the heart cavity. The head was subsequently preserved in Zenker's fluid. Specimen B2671 was decalcified and embedded in paraffin for serial sectioning.

The ocular tissue from the right side of rat B2670 was removed and the tissue in the left orbit was shelled from the bone and left attached at the apex of the socket. The remaining soft tissue of the head was then removed and osseous parts cleaned. A small opening was made in top of skull and the surrounding bony tissue carefully taken away until the brain substance could be removed. The bony structure of the calvarium was much thicker than normal and more difficult to remove. The orbital tissue of the left side was not connected to the brain by any nerve tissue, such as one would expect to find in a normal animal. The optic foramen could not be definitely located. The optic nerves were missing and no optic chiasm was found. The brain was peculiarly formed, considerable distortion of the central nervous system being noted.

The serial sections of the head of rat B2671 were stained with hematoxylin and eosin. The head of a normal rat of the same age was prepared histologically in a similar manner for comparison. The specimens were studied in collaboration with Professor H. B. Ferris of the Department of Anatomy. The lids of the anophthalmic rats were well formed, showing cilia and normal glandular and musculature tissues. The orbital cavity was lined with conjunctiva. The latter showed, in places, a breaking down of the epithelial layer, probably due to some low grade infection or irritation. The lacrimal and Harderian glands were present, but stained poorly because of the decalcification process. The extrinsic muscles and their nerve attachments were present, but undeveloped and difficult to differentiate.

There was no sign of an optic nerve in either side. The tissue of the eyeball was completely absent. The bony structure of the orbit was well developed and the socket of fair size. In the brain cavity there was no sign of optic nerve or chiasm. The microscopic findings of the serial sections of rat B2670, in which the staining was more satisfactory, were similar to that of rat B2671.

Fig. 4.—Anophthalmic rat, 60 days. Side View.

It is our intention to make a complete histologic study of the remaining ocular and cerebral tissue now at hand. At the present time, another series of rats showing similar ocular malformations has been secured from the Department of Physiological Chemistry for the purpose of investigating the transmissibility of their congenital ocular disturbance.

COMMENT. The blind rats already investigated can rightfully be considered as cases of true anophthalmos from a clinical and histopathologic standpoint, for they show no remnant of embryonal ocular epiblastic tissue. Anophthalmos is usually bilateral. The condition is quite rare. Unfortunately, it is impossible to diagnose this ocular disturbance clinically, without a microscopic examination of the tissue. A number of socalled cases of clinical anophthalmia, when properly investigated, prove to be only diminutive microphthalmia.

The etiology of the condition presents twofold possibilities; either the primary optic vesicle has failed to bud from the thalamencephalon; or having budded and developed, it was destroyed by some local nutritive disturbance, caused by toxic, infectious or chemical agents, produced intrauterinally or introduced thru the circulation of the mother.

Lewis[1], Stockard[2] and others, have shown by experimental work that the growth of the primary optic vesicle is necessary for the development of the secondary optic vesicle and the lens. Collins[3] has cited several human cases of true anophthalmia, in which the visual tract that normally develops from embryonic epiblastic tissue, was lacking.

A number of cases have been quoted by von Hippel[4] in which a purulent conjunctivitis was present at birth. He also described a case of his own, having a similar clinical appearance present at birth. Boulai[5] reported a case of bilateral anophthalmos, which presented a conjunctival sac of granular appearance and was covered by a turbid serum.

In a case which he had seen, Greefe[6] attributed anophthalmos to amniotic bands and adhesions during intrauterine life. Abnormal conditions of the amnion probably account for some malformations; but I do not regard them as responsible for this ocular disturbance. Neither do I believe that stress should be laid on the presence of purulent discharge from the cul-de-sac, for that may be caused by irritation. If there were any considerable infection present, there would be other manifestations thereof.

The experiments of Pagenstecher[7] clearly demonstrated that feeding naphthalin to animals produced not only cataractous conditions of the lens, but also malformations of the eye. Guyer and Smith[8] produced all sorts of ocular deformities in the offspring, by the introduction of foreign lens protein into the pregnant mother rabbit; and, what seems more interesting, they were apparently able to transmit this defect.

All my animals showed some form of discharge from the conjunctival sac. On microscopic examination this fluid disclosed nothing other than products of the breaking down of cellular tissue with no signs of bacteria. It was probably due to the irritation of the entropion. Some observers have considered congenital deformities such as anterior staphyloma, coloboma of the iris, choroid and retina, and even microphthalmos as due to an exogenous infection, but cases of true anophthalmos which have been reported, show that some part of the brain, particularly that associated with vision, was also missing.

## SUMMARY AND CONCLUSION.

A clinical and histopathologic study was made of a family of blind albino rats, that presented congenital ocular defects and peculiar head malformations. The eyeball, optic nerve and chiasm were found missing. The tissue which ordinarily develops from the mesoblastic layer was present, but in an undeveloped form. This ocular malformation, known as anophthal-

mos, was probably produced by an arrested growth of the primary optic vesicle by some toxic, infectious, or chemical agents, introduced from the mother's circulation to that of the embryo in its early stage of development.

These blind albino rats were born of normal parents that were subsequently mated and no malformed offspring were detected. A careful inbreeding of these animals did not reveal any ocular disturbance.

At present, a new series of anophthalmic and microphthalmic animals are being studied to determine the possibility of transmitting the ocular defect to their progeny.

(This study has been facilitated thru the cooperation of Drs. Thomas B. Osborne and Lafayette B. Mendel, under the auspices of the Carnegie Institute of Washington, D. C., and the Connecticut Agricultural Experiment Station which shared the expenses of the research.)

*257 Church Street.*

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# THE WILMER INSTITUTE OF THE JOHNS HOPKINS MEDICAL SCHOOL AND HOSPITAL.

W. H. WILMER, M.D.

BALTIMORE, MARYLAND.

Making the most of temporary quarters, the Wilmer Institute had 1653 house patients and 531 major operations in its first year. Its library, of 1,500 volumes and 56 periodicals, has a good start. Several lines of original research are being carried forward and its facilities are being utilized for teaching, both undergraduate and graduate students. Abstract of remarks before the Chicago Ophthalmological Society, January 17, 1927.

Mr. President, and members of the Chicago Ophthalmological Society: May my first words convey to you my very sincere appreciation of the honor and the privilege you have accorded me by inviting me to tell you something of the Department of Ophthalmology at Johns Hopkins Medical School and Hospital. Individually, and as an organization, the Chicago Society was among the first to offer its good wishes.

Very shortly after the completion of the fund for the Department of Ophthalmology at the Hopkins, I received from your Society a letter, which is placed with other precious keepsakes in the treasury of my memory. This communication, written by Dr. Loeb with his usual charm of expression, congratulated me upon the first stage of the undertaking, and expressed the good wishes of your Society for future achievements. It came to me at a time when I was breaking up a happy home circle and an established practice in pleasant surroundings, to start out upon a great adventure in ophthalmology in a new environment. Upon its receipt, I felt a renewed vigor fill my frame and courage in my heart—like the mythologic Aristaeus when sprinkled with nectar by Cyrene, upon the eve of his great experience.

Your present city has been developed almost within the life of one generation. You have speedily made your dreams come true and your visions a reality. Therefore, to tell you of our little plan is, in the language of the quaint Chinese proverb, "as if the well frog should speak of the ocean." But Dr. Buck, your secretary, has extended your invitation in so gracious a manner, that I am taking him at his word; instead of presenting a formal paper upon some scientific or clinical subject, I will, in the most informal manner possible, tell you something of our beginnings, our plans, and our aspirations for the future.

Before the recent founding of the Department of Ophthalmology at Hopkins, the annual budget for this branch was $1,500 which, with an additional $1,000 for research, brought the total to $2,500; and the number of beds in the hospital designated for eye patients was two—but the exigencies of an overcrowded hospital often made these two beds difficult to obtain.

Pending the building of the new Institute, the nurses' old home has been converted into a hospital for clinical work, giving thirty-nine beds, (nine private rooms; seven semiprivate cubicles, and twenty-three free beds in wards). Pathology is carried on in the general Pathology building; children's eyes are treated in the Department of Pediatrics; contagious eye cases in isolation rooms in the Department of Medicine; experimental work is carried on in the Pathology Building, the Department of Anatomy and the Hunterian laboratory; and the outdoor department in separate and temporary quarters. But in spite of these widely scattered activities, we have had 531 major eye operations, and 1,653 cases have been admitted for careful survey and treatment.

It has been felt, in undertaking any line of research, that one of the most important things is to know beforehand what has been done by others in the same line of investigation. Therefore, every effort is being made to accumulate a small but good ophthalmologic library, for reference. Up to the present time we have nearly fifteen

hundred volumes; and in addition, subscriptions to fifty-six periodicals. The literature of ophthalmology is fairly well covered in English, French, German, Italian, Spanish, and some journals in Russian and Danish.

In addition to seeing what others have done in the same line of activity, it has been felt that it is most important to keep careful records of all cases that come in the Institute for operation and for survey. These histories are quite full, and have on the front page a general summary, and in cases where a general medical survey is made, a synopsis of the survey. This makes reference to the histories easy, and permits the details of every examination to be studied in addition.

Every Monday night the members of the Resident Staff of the Institute have a meeting and go over all the histories for the week. All errors are corrected and additional information recorded.

These histories are then filed, in a way in which they are easily obtainable by any one of three methods: by name, disease, and serial number. When the new Institute is completed, the history room will be separated from the library, and a historian will be in charge, who will be able to furnish by means of a pneumatic tube, histories to any part of the outdoor department or the interior departments of the hospital.

Mrs. Burgess has been appointed as full time artist in the Institute. She has shown much faithfulness, not only to art itself, but to her particular work; and I feel that as time advances, she will have no superior in this country in the delineation of diseases of the eye, as seen by the naked eye, the slit lamp, and the ophthalmoscope.

Dr. Jonas Friedenwald has charge of ocular pathology in the Institute, with his laboratory temporarily in the Pathology Building. In addition to a great deal of routine work on pathology and physiologic optics, he has done some work upon the examination of the eyes of fetuses affected with congenital syphilis, and the ocular lesions of syphilitic rabbits.

Some experimental work has been done upon the relation of endocrine glands to intraocular pressure. It is too early yet to report upon the relation of these glands to the question of pressure within the eye.

The recent experiments of Guyer and Smith, considered in the light of the early experimental work upon lens protein done by Uhlenhuth, Hektoen and others, have made it seem opportune to us to study this entire question from the immunologic standpoint, with the hope that some light may be thrown upon the problem of senile cataract. Before the clinical aspects of this work could be started, it was necessary to rework the entire question of the immunologic and chemical properties of lens protein. This work has engaged Drs. Alan C. Woods and E. L. Burky for the last eighteen months. They have finally succeeded in not only preparing a standardized solution of lens protein, available for clinical use, but also in separating lens protein into serologically pure fractions of alpha crystallin and beta crystallin. This preparation of serologically pure alpha and beta crystallin has not before, so far as we know, been accomplished; and to make these preparations Drs. Woods and Burky make use of the isoelectric parts of the different lens fractions. There are further studies in the spontaneous precipitation of the beta crystallin, which occurs only when the colloid protective action of the alpha crystallin is removed. This may possibly have some practical application to the etiology of senile cataract. A full report will be presented later by Drs. Woods and Burky.

Dr. Laura A. Lane is in charge of the department of radiology. In addition to much therapeutic work, Dr. Lane is studying dosage and methods of application of radium; screening of patient and physician; the type of radium applicators best suited to ocular therapy; relation of general physical condition of patient in regard to use of radium; study of effect of radium upon the chemistry of the aqueous and its effect upon the metab-

olism of ocular tissues; following up and checking each patient for six months to two years after treatment; a complete patient and disease index; tabulation of the cases and results; a separate index on protozoa, diet and food deficiency research; photographs of cases, etc.; a radium index covering all the literature upon the subject from 1903 to the present time.

Drugs, such as betaborocain, etc., are referred by wholesale firms to the department for an opinion upon their value in ophthalmology. These are tested and reports made upon them.

At present the facilities of the Institute, for both ward rounds and operative clinics, are used as far as possible for teaching. At the same time, in spite of very temporary and cramped quarters, the students are divided into small sections for study in the dispensary. The teaching in the dispensary is entirely clinical. Small groups of students take the histories of the new patients—patients being assigned to the students in turn. They examine the patient by themselves; and when they have completed their study of the case, the patient is examined by the ophthalmologist in charge, or one of his assistants. The diagnosis of the student is verified or corrected, the condition explained and the proper treatment suggested. When the patient returns to the dispensary he is seen by the student who first took his history. Especially interesting cases may be explained by the ophthalmologist in charge to the group as a whole, when this is deemed warranted. The patients requiring hospital treatment, as far as possible, are referred to the eye department.

From the first of February to the first of June, the third year class has a practical lecture, once a week from 12 to 1, in order to prepare them for the clinical experience of the fourth year, the graduating year. In this lecture, the various forms of apparatus for examination are demonstrated and explained, the common diseases of the eye are considered and illustrated. The idea is merely to familiarize the third year class a little with a practical knowledge of ophthalmology, before having intimate contact with the patients in the dispensary and the hospital during their fourth year experience.

The general policy in undergraduate teaching will be to stress the close relation of the eye to the problems of general medicine. As George Frick wrote in 1823, "The eye may be said to resemble a microcosm in which may be discovered all the various morbid changes which take place throughout the other organs and tissues of the body."

In addition to the instruction given to undergraduate students, it will, in the future, be possible to take a limited number of postgraduate students, especially those who desire to pursue some particular line of experimental investigation. It will also be the aim of the Institute to train the Resident Staff to become competent ophthalmologists.

It is hoped to emphasize the laboratory side of the clinic, as far as possible. There will be all told 71 beds (15 private; 10 semiprivate cubicles; 6 for children, 8 for isolation, and 32 ward beds, making a total of 46 free beds). But two of the private rooms and portions of two of the wards will be so constructed that they may be easily converted into additional small experimental laboratories. The new Institute will provide for a larger library, accessibility of histories, pathology and bacteriology, experimental ophthalmology, operative suite, radiology, art department (water color and photography) and physiologic optics. In addition, the Institute will have its own laboratory for blood chemistry and the study of basal metabolism, the cots being in a room apart from the respirometer, etc.

The ultimate fund for the Ophthalmological Department will be $3,000,000. The raising of this fund is a tribute to the generosity and loyalty of patients and friends, and to the desire of the Rockefeller Foundation and Johns Hopkins to further medical education. $1,000,000 of this is to be applied to building and equipment of the Institute. Of this amount, $137,603.26 has already been expended for

the alteration and equipment of the nurses' old home. This leaves approximately $850,000 for future building and equipment.

The income of $2,000,000 (approximately $100,000) will have to be divided to cover all the expenses of the hospital, teaching and experimental work. We are limited in both the amount of money and space for the additional building, which I hope will be started in February.

It will not be possible to make either the new or the old building attractive from an artistic point of view; but we hope to endow them with the "beauty of efficiency." "Better the rudest work that tells a story of records or facts than the richest without meaning," as Ruskin says. So we will depend more upon men than upon bricks and mortar.

However, better than a beautiful building with imposing facade is the wonderful spirit of helpfulness and cooperation among my colleagues of Johns Hopkins. It is mainly thru their assistance and sympathy that I can hope to make this work a success.

The amount of work that has already been accomplished in the Institute is due in the greatest measure to the efficiency and loyalty of its Staff. For the future I place the greatest faith in their assistance. Great responsibility will be placed upon the heads of the various departments, but at the same time full credit will be given them for accomplishments.

When the Institute is completed, or at any time, we will be glad to welcome you within our doors. It has been very wisely said that "it is in general more profitable to reckon up our defects than to boast of our attainments." Therefore, you may profit by our failures; we will certainly gain by your visit. For your more than kind reception and your stimulating interest and sympathy in my work, let me offer you my profound thanks.

## DISEASES OF THE EYELIDS WITH SUGGESTIONS OF A DERMATOLOGIST.

WILLIAM J. MACDONALD, M.D.

BOSTON, MASS.

Some important diseases of the skin of the eyelids are here briefly noticed with practical suggestions as to their causes, recognition and treatment. Read before the New England Ophthalmological Society, April 20, 1926.

In presenting this aspect of dermatology it will be my aim not, in pedantic fashion, to subject you to a complete review of the subject, but rather to bring to your notice that which I hope will prove interesting and practical. Let me group dermatologic affections of the eyelids into the following subheads: I. Exudative Diseases; II. Inflammations; III. Mycotic Diseases; IV. Neoplasmata; V. Diseases of the Appendages; VI. Infectious Diseases.

I. EXUDATIVE DISEASES. *Erythema Multiforme* and *Urticaria* are typical examples of toxemic states resulting in a disturbance of vascular tone. We see this toxemic assault shown in an outpouring of serum and the presentation of more or less transitory pruritic wheals of various shapes. With the unfolding of spring, there will come swollen eyelids from various causes, either internal or external. For the alleviation of these pruritic conditions, I would suggest the oral administration of calcium lactate in fifteen grain doses, thrice daily. A soothing application is:

Liq. Carbonis Detergens,
Liq. Plumbi Subacetatis Dil, | aa 2 drams.
Pulv. Calaminae, 4 drams.
Glycerini, ½ dram.
Aq. Calcis, ad 8 ounces.
M. Sig: Compresses soaked in lotion to be applied constantly to eyelids.

With reference to *pemphigus*, the dermatologist is still puzzling over this problem. You will on rare occasions

come in contact with pemphigus of the eyelids or conjunctivae. The most recent treatment is that so hopefully presented by H. and W. D. Davis[1]. Their results appear to be most inspiring and certainly are the best so far published in any literature. They recommend the intravenous injection of Ferri Cacodylate, 1 grain to 5 c. c. of the vehicle, thrice weekly, alternating with hypodermic administration of Coagulen. I have not been able to reproduce their results in those cases which have come under my notice, but I shall not cease trying.

II. Inflammations. *Eczema* is by no means uncommon on the eyelids, and can prove resistant to treatment. If the disease is very acute, soothing lotions are kept constantly applied. Pusey's[2] calamine lotion, prepared according to his specific direction, is a valuable application. If the disease is chronic, I recommend and utilize the Roentgen rays. The dosage is carefully measured to avoid epilation of the eyebrows. At the present time, X-rays are being used widely for these intractable dermatoses. The method is clean, rapid and almost specific.

III. Mycotic Infection of the Eyelids. The investigation of a peculiarly resistant dermatosis of the eyelids, one characterized by a fine, branny, desquamation and faint brown pigmentation, revealed thread like bodies—mycelia—in two cases referred to me by Dr. Somers Smythe last year. This affection, a form of mycotic infection, Tinea Palpebrarum, yields to mild desquamative or keratolytic ointments. Fungi are vegetable bodies which are devoid of chlorophyl and starch and are always parasitic or saprophytic. They occur as interlacing segmented threads, and reproduce themselves by a process of budding. This vegetable formation is composed of cellulose, so that its identification is generally easy, by examining scrapings which have been allowed to remain in KOH. 15% for thirty minutes.

IV. Neoplasms. The neoplasm which is most common upon the eyelids is that yellowish raised plaque called *xanthelasma*. For its removal we have a choice of these methods:

(a) Acid Cauterization.
(b) Electrolysis.
(c) Electrodesiccation.

The first method is slow and uncertain. Electrolysis is not very painful altho it is tedious. The results are good. It is wise to wait and observe the result obtained in one eyelid before proceeding to the second. If a keloid does not occur in the first instance, proceed and treat the second eyelid. In diathermy we have a very useful method of attacking xanthelasma. The desiccation spark is played on the yellow tumor. On separation of the resultant crust, a clean, pink scar is found. Later on this fades, as atrophy sets in.

I also believe that *epitheliomata* are best dealt with by diathermy. The whole tumor can be rapidly outlined and destroyed. Radium may also be used, especially for the basal cell type of epithelioma found growing at the inner canthus. Wyeth[3] of New York obtains remarkable results with diathermy. I would emphatically draw your attention, therefore, to the advisability of employing this method in tumors of the eyelids.

*Telangiectases* are easily eradicated with the electric needle. I do not know how ophthalmologists today are eradicating Meibomian cysts. I would suggest, if the operation of incision and curettage is still being done, that it be replaced or at least aided with electrocoagulation. A more thoro eradication of the cyst would result and the usual clotted foreign body would not annoy the patient.

*Molluscum Contagiosum.* That small tumor with central umbilication is treated by expressing the contents and touching with the desiccation needle from the Oudin current.

*Angioma* of the eyelids offers a nice problem always. Undoubtedly, radium is the method of choice. Each radiologist has his own favorite technic. It is wise to deal with them over a series of two or three treatments. I prefer to filter out all the beta rays, using for this purpose two millimeters of brass

and five or six layers of rubber dam. An exposure of two hours is given and repeated at a later date. The eye is fairly radio resistant, and if a mild conjunctivitis ensues it will soon disappear.

V. Diseases of the Appendages. *Trichiasis* is an exasperating ailment. I need hardly remind you that permanent epilation can be secured with the electric needle. I have had occasion to do this recently in a case referred by Dr. Edward Hurley. It is a tedious operation for the operator and his patient, and the end result is good and gives lasting immunity from the irritation of ingrowing eyelashes.

*Seborrheic eczema* of the eyelids or blepharitis occurs most commonly in ill-fed sickly children. As an adjuvant to the usual well known local measures of treatment, I would earnestly urge the use of the quartz light, applied over the whole body. Remarkable results have been obtained in rickets. There is no reason to suppose it would not aid these sickly children suffering with intractable blepharitis. If some philanthropist would only endow a large institution for the treatment by physiotherapy he would make Boston famous and prove himself a real humanitarian.

VI. Infectious Diseases of the Eyelids. Naturally the first disease I think of under this subhead is the *stye*. Local treatment is simple and well known. But, I wish to suggest a method of treatment for your intractable cases. This procedure calls for the withdrawal of ten to twenty cubic centimeters of blood from the median basilic vein, and its immediate intramuscular reinjection deeply into the thigh. Autohemotherapy, as this operation is called, has proved of undoubted value in other pyogenic infections[4,5]. Personally, I have used it frequently and succesfully.

*Syphilis.* I do not intend to delve deeply into the subject of syphilis. It is intensely interesting, but I have nothing new to tell you. The primary lesion generally arrests attention, but beware of a mild conjunctivitis of sudden onset and resistant to the usual treatment. It might be a secondary roseola. Headache can also result from latent syphilis. The mere supplying of glasses will not achieve the desired result. It is not necessary to speak of the symptoms of syphilis, because it would be superfluous. But the treatment is more important. Hereditary syphilis, primary and secondary syphilis call for the intravenous injection of arsphenamin. In the event of poor veins, the intramuscular administration of sulpharsphenamin is indicated. After a thoro course of arsenicals combined with mercurial inunction, administer bismuth intramuscularly. Bismuth has been declared superior to mercury and can be given to children with perfect safety. With skilled technic there is practically no pain.

In the treatment of tertiary syphilis, I would advise caution in the use of the arsenicals. Disasters have occurred owing to a rapid liberation of endotoxins in the body. It is wise to rely on potassium iodid and mercury by mouth at first. After several weeks of oral administration, recourse to neoarsphenamin can be tried, provided, of course, that the cardiovascular system is not grossly deranged.

In conclusion, it has been my aim to steer clear as far as possible from what you know well, and rather to impress upon you the dermatologic aspect of ophthalmology.

*270 Commonwealth Ave.*

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# TREATMENT OF OBSTRUCTION OF THE CENTRAL RETINAL ARTERY.

SYLVESTER JUDD BEACH, M.D.

PORTLAND, MAINE.

A case ending in recovery is reported. Recent views of the mechanism of such obstruction are contrasted with that suggested by Graefe and perpetuated in the literature. A table is given of the reported cases of cure or partial cure with a summary of the methods of treatment employed. Condensed from Membership Thesis submitted to the American Ophthalmological Society.

Current recommendations for treating sudden blindness from obstruction of the central retinal artery are not alone contradictory, they do not accord with present understanding of the disease. Presumably this is because treatment was originated when such attacks were attributed to embolism. Almost universally writers still contemplate dislodging an obstacle, conceived of as a detached plug borne by the blood stream. If, on the contrary, a majority of these disturbances result from endarteritis obliterans, often more or less complicated by spasm, or thrombosis, they should be attacked from this standpoint. Most writers incline towards one or the other of two conflicting opinions. One holds that recovery is so exceptional that treatment is hardly a consideration, and implies that very likely it had little to do with the rare cures reported. This view arouses strenuous objection from a few observers, who have been lucky enough to see recovery follow pressure on the globe. Quite naturally this second group urgently advocate prompt forcible massage.

## METHODS.

It often seems as tho treatment were administered rather to satisfy the insistence of the patient than with hope of improvement. One of several time honored expedients is commonly selected for displacing an embolus. If not squeezing or shaking it off by massage, it may be a decompression operation to reduce intraocular tension, in the hope that the consequent relative increase of systemic arterial pressure will force the obstacle forward into a smaller and less disabling branch.

To increase further the difference between the intraocular tension and that in the arteries, miotics and digitalis have also been prescribed. Other drugs administered either alone or as auxiliaries are: cathartics, sudorifics, iodides and nitrites, for the purpose of absorbing the clot and reducing its size, or of enlarging the vessel into which it is pictured as having been wedged. In addition, leeching, pressure bandage, pneumomassage, manipulation of the optic nerve with a probe; and, in air embolism, the pneumatic cabinet, have likewise been tried or suggested. My conviction of the soundness of these recommendations began to waver during the study of a case some ten years ago. It deserves reporting apart from its bearing upon treatment, as an example of that miraculous restoration of sight which may, in rare instances, follow pressure.

## CASE.

December 8, 1916, at 4 p. m., a library worker, female, single, fifty-two years old, while at work suddenly lost the entire vision of her left eye. Greatly alarmed she started immediately for my office. On her way light perception returned in the upper field, so that she was able to "make out a little corner of the sky."

At 4:30 p. m., one-half hour after onset, she reached the office. Her affected eye had by this time made a marked recovery in the upper field, tho fixation was still obscure. She said when she looked at my collar she could make out my head.

Externally the eye was like the other. Tension normal to palpation. The ophthalmoscope showed complete stasis of the superior retinal branches

with broken column in the temporal division. The superior arteries were not well filled and a bit darker than the inferior. There was no constriction nor evidence of spasm. The retina was not opaque and no cherry red spot showed at the macula.

Fairly forcible intermittent pressure with a circular motion for some minutes was followed by the encouraging report that the patient could see further down than on arrival, tho not distinctly. With the ophthalmoscope of vision. The ophthalmoscope showed complete restoration of circulation and disappearance of the broken column. For a quarter of an hour longer I continued massage at intervals and then sent her to the hospital where it was repeated occasionally, and salines and iodides administered internally.

November 13, 1917, nearly one year later, examination showed: O. D. normal. O. S. (the affected one) tension normal. Fundus normal. Very

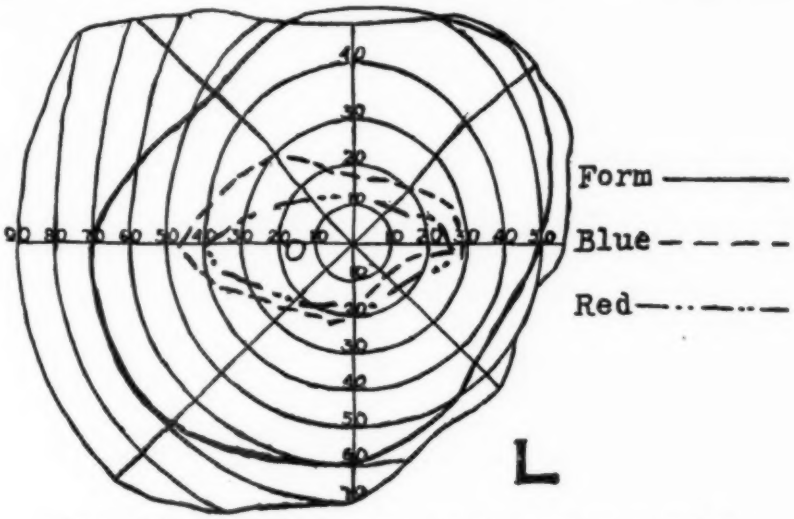


Fig. 1.—Field of vision with five minute test object at 23 cm., by daylight.

the breaks in the temporal blood column could be seen to have moved further along. In spite of rather uncomfortable pressure there was no further improvement.

While I was working it occurred to me that to drive an obstruction past its lodgment the important factor must be less the pressure than the velocity of the recoil. I attempted to increase this by sharply releasing each push. This I did much oftener than every thirty seconds, which I have since found to be recommended by Barkan, and this produced a jerky pumping motion, differing, however, from the pumping produced by machines for pneumomassage, in the speed of the return. By 5 p. m., one hour after the attack, the patient said that she could see objects in all directions tho very hazily below the line deep physiologic cup. L. V. with correction =6/V. Field of vision, as on accompanying chart, showed the form field somewhat contracted to the temporal side and color fields reduced and flattened vertically. Neither eye showed noticeable arterial changes.

Her physician reported blood pressure and urine normal and found no evidence of valvular disease. No evidence of lues. No other attack has occurred in either eye and at last communication (October, 1921) she had noticed no difference between the vision of her eyes.

This case explains why embolism is the instinctive interpretation of such attacks. Without visible arterial changes in the fundus, and in absence of any evidence of atheroma in the general circulation or in the heart or kidneys, it is a highly satisfactory ex-

planation. Yet not only must one inquire where such an embolus originated, but also, with Mules, must wonder where it went.

NATURE OF OBSTACLE.

In spite of the general agreement that arterial disease is at the bottom of most of these cases, and that the sudden closure may often be attributed to spasm provoked by it (Greenwood), nevertheless the hold which the notion of embolism has upon the imagination of the profession is still unbroken. Seventy-six percent of the reports of obstruction of the central artery during the last six years were classified as embolism. This is exclusive of Kapauner's report for forty-six other cases so classified.

Except for this persistent misconception it would be superfluous at this late date to repeat the objections to the embolic theory. It was first proposed in 1857 by v. Graefe. His brilliant, if not entirely convincing arguments confirmed by Schweigger, who, eighteen months later performed the autopsy, still satisfy most practitioners. Distrust, nevertheless, started in 1873 with Mauthner's observation that a true embolus could rarely be demonstrated in these cases, and Loring's suggestion that the suddenness of the attack instead of being pathognomonic of embolism, might be merely the outcome of a process in the vessel wall which had actually been smouldering for a long time.

Both hypotheses have been verified by the microscopic reports of almost all investigators in this field for nearly half a century. Thrombosis (Ridley, Siegrist, v. Michel) and later endarteritis obliterans (Rählmann) were also found to cause the clinical picture attributed to embolism. Subsequent observations, especially by Haab's school, indicated that endarteritis was at the bottom of most such disturbances. In 1905, Harms, in a masterly review of the entire literature, stated that embolism in the sense intended by v. Graefe had never been demonstrated. Altho true emboli have since been found in isolated instances (Wessely, Meinhausen) and some authorities believe that spasm can become permanent in absence of arterial disease (Crisp, Lanier), endarteritis is still held responsible for most attacks.

The impossibility of determining clinically which of these various conditions is present in a given case seems now to be universally conceded. Coats found atheroma in sections of vessels that appeared normal to the ophthalmoscope, so that neither the appearance nor the history is characteristic. Causal therapy is therefore out of the question. As some of the remedies seem more or less appropriate to obstruction from any cause, the problem can fortunately be attacked from a different angle. It is possible to tabulate the cases and learn just which therapy has most often proved successful. As will be seen, the results are not strictly in accord with the conventional view.

REPORTED CASES OF RECOVERY

| Reporter | Treatment | Extent | Time of Improvement |
|---|---|---|---|
| 1. Mauthner | Spontaneous | Probably complete | While gathering instruments |
| 2. Haase | Indifferent | Nearly complete | Two or three months |
| 3. Wood-White | Pressure | Nearly complete | Instant |
| 4. Mauthner | Spontaneous | Probably complete | Instant |
| 5. Mauthner | Sclerotomy | Nearly complete | Prompt and increasing |
| 6. Mules | Pressure | Marked gain | Prompt |
| 7. Helmkampf | Pressure | Nearly complete | Prompt |
| 8. Hirschberg | Pressure | Nearly complete | Prompt |
| 9. Hilbert | Pressure | Nearly complete | Prompt |
| 10. Fischer | Pressure and KI | Nearly complete | Prompt and increasing |
| 11. Perles | Pressure | Nearly complete | Prompt and increasing |
| 12. Story | Amyl nitrite (Massage failed) | Nearly complete | Delayed |
| 13. Wood | Spontaneous | Marked gain | Prompt |
| 14. Wood | Iridectomy (Massage tried and failed) | Moderate | Slow |

| | | | |
|---|---|---|---|
| 15. **Haitz** | Iridectomy | Recovered central vision | Slow |
| 16. Wurdemann | Massage and KI | Complete | Slow |
| 17. Wurdemann | Massage and KI | Nearly complete | Slow |
| 18. **Fejer** | Massage and KI | Nearly complete | Slow |
| 19. **Caspar** | Massage | Marked gain | Slow |
| 20. deSchweinitz and Holloway | Massage | Marked gain | Prompt |
| 21. Hesse | Massage | Marked gain | Prompt and increasing |
| 22. **Asmus** | Paracentesis (Massage failed) | Complete | Prompt |
| 23. **Bietti** | Paracentesis | Complete | Slow |
| 24. **Jennings** | Pressure-Amyl nit. | Marked gain | Prompt |
| 25. **Hird** | Pressure-Amyl nit. | Marked gain | Prompt |
| 26. v. Pflugk | Paracentesis | Nearly complete | Slow |
| 27. **Ellett** | Massage | Moderate | Prompt |
| 28. Kraupa-Runk | Massage | Complete | Prompt |
| 29. Strebel | Massage paracentesis | Marked gain | Slow |
| 30. **Callan** | Paracentesis | Complete | Prompt |
| 31. Wurdemann | Pressure | Moderate | Slow |
| 32. **Beach** | Massage | Nearly complete | Instantaneous |

To begin with, out of some sixty reported cures, only thirty-four writers demonstrate incontestibly that the gain was such as would indicate reopening of the artery. Without any apparent change in the obstruction, many patients have regained some sight when the edema subsides, especially at the edge of the scotoma. Such instances are not included.

### TREATMENT FOLLOWED BY RECOVERY

The results of this analysis are as follows: Four cases recovered with no treatment, or none mentioned (1-2-4-13). Some others, like mine, partly improved before anything was done. In fifteen the improvement followed massage, (3-6-7-8-9-11-18-19-20-21-25-27-28-31-32). Seven responded to operation opening the globe (5-14-15-22-23-26-30). One (12) was receiving nothing but nitrites at the time of recovery. The remaining five were indeterminate because a combination of treatment was being used (10-16-17-24-29). In short, recoveries are fifteen under massage, seven under operation, and two under drugs. The value of massage cannot be questioned after the eleven instant recoveries following it. Yet in two instances (14-22) after a complete failure with massage, cure followed operation (iridectomy, or paracentesis). In the only other case in which two methods of treatment could be compared (12) after failure of massage, some gain followed protracted use of amyl nitrite.

In other words: while massage is responsible for most recoveries, it has failed when paracentesis, iridectomy, and amyl nitrite have severally been followed by benefit. The converse has not been recorded.

### DELAYED RECOVERY

Even less in accord with current belief, is the possibility of improvement, after a considerable lapse of time. In spite of the teaching that obstruction of the central artery results in rapid death of the retina, Story reported improvement after administering amyl nitrite for days, and v. Pflugk was rewarded by almost complete recovery after repeating his paracentesis for nearly three weeks. Just how the retina survived in these cases is a matter of conjecture. Two possibilities have been discussed. Fischer, having in mind an embolus, planned by massage to rock it a little, thus permitting seepage of blood enough to maintain visibility. V. Graefe's treatment undertook to facilitate the development of a collateral circulation about the block. Such collaterals have occasionally been demonstrated (Knapp, Salus, Nettleship, Gonin, Feingold) but could hardly save the retina if not already present at the time of the attack.

There is nothing in the ophthalmoscopic appearance, or history, in these cases where the retina has recovered function after protracted arterial obstruction, that differs from the cases which have remained blind or those which have responded at once to treatment. Take, for instance, Strebel's

example in which final recovery was not attained for five or six weeks. Here the picture which is considered pathognomonic of retinal obstruction is described in minute detail; cherry-red spot, edema, and interference with arterial circulation. Similar appearances are noted in the reports just mentioned by Story and v. Pflugk. Granting that in these instances the vitality of the retina was maintained by seepage past the block, there is no way of knowing that this is not taking place in any case. Hence recovery should not be despaired of until treatment has been persevered in for a very considerable period.

SUMMARY.

Obstruction of the central artery of the retina is a clinical composite rather than a pathologic entity.

Some manifestation of endarteritis rather than embolism probably causes the sudden blindness in most instances. Treatment should not, therefore, be restricted to dislodging what is assumed to be a detached plug wedged in an artery. Instead syphilis and other toxic factors associated with arterial disease should be investigated.

Late cases are not inevitably hopeless. Patients have recovered suddenly weeks after the onset. All cases are therefore entitled to treatment even if not seen for some time after the attack.

Massage is not the last resort, altho more often followed by recovery than all other remedies. Yet where it has failed and been abandoned great improvement has, in rare instances, been recorded following operation, or nitrites.

Treatment is obviously far from being a matter of indifference. In obstinate cases all methods should be patiently exhausted.

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# NOTES, CASES, INSTRUMENTS

## THRUSH OF THE CONJUNCTIVA.

A. H. NORTON, M.D.

SEOUL, KOREA.

I believe this disease is of sufficient rarity to warrant a report. In the ophthalmologic literature to which I have access, I can find but one reference to it. Fuchs quotes Pichler as saying that a severe membranous conjunctivitis is caused by the thrush fungus.

The case I have to report is that of a 5 year old boy. There is an 11 year old girl in the same family who is said to be affected in the same way, but I have not seen her. During the time of the infection in the boy's eyes, the father had a mild injury of the corneal epithelium and as it continued to bother him, showed it to me at the time he presented the boy. I found what looked like a small scab 1.5 mm. in diameter just inside the limbus at 6 o'clock. It was easily removed, leaving a shallow ulcer which healed in two days after cauterization with iodin. Under the microscope the scab showed a definite structure quite similar to the growth from the boy's eyes.

The boy's eyes presented four patches of white growth, two on each eye, symmetrically placed just outside the cornea in the palpebral fissure. Those at the outer sides were larger and triangular. Those at the inner sides were smaller and roughly quadrilateral. They were first discovered by the parents about a month ago and they noticed that they were easily removed and that they quickly recurred. There was no pain and the child made no complaint. The rest of the conjunctiva was normal. Sometimes some of the growth would be detached by the lid margin and float around in the cul de sac.

With a small spatula I removed all I could of the material for microscopic examination. From the smaller and probably more recent spots it could be scraped away leaving the conjunctiva unchanged as far as one could see with a loupe. The larger places showed a wrinkled, yellowish, and slightly chemotic conjunctiva which moved so freely over the sclera that it was rather difficult to remove it at all. The spots looked a good deal as tho curdled milk had been spread there. The material was very sticky and it was difficult to get it off the spatula.

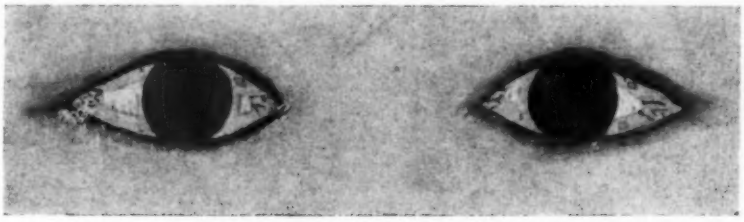

Fig. 1.—Thrush of conjunctiva in boy five years old. (Norton).

Both smears and cultures were made and the growth identified as Oidium Albicans. It showed a mycelium consisting of a single row of cells about twice to three times as long as wide, and scattered in its meshes a great many spores much resembling cocci or short rods varying in size a little. The latter stained readily with dilute fuchsin and Gram's.

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## VOSSIUS RING CATARACT AND RUPTURE OF CHOROID.

WALTER F. HOFFMAN, M.D.

SEATTLE, WASHINGTON.

Dr. Samuel Durr's report of a Vossius Ring Cataract in the last number of the JOURNAL stimulates me to report a case seen last year which demonstrates that we can never be too careful in our prognosis of these injuries.

E. H., age about 35 years, sustained an injury to the right eye thru the explosion of an automobile tire which he was adjusting to the rim. The day following the accident, the upper lid was red and very much swollen. There was considerable injection of the bulbar conjunctiva and a small hemorrhage at the lower, inner portion of the limbus. The pupil was dilated and at that time. Ophthalmoscopic examination of the fundus, which could be clearly seen, now revealed a large rupture of the choroid, extending from the top of the disc around and down thru the macula. The vision did not improve from this time and the man was eventually discharged with a practically blind eye.

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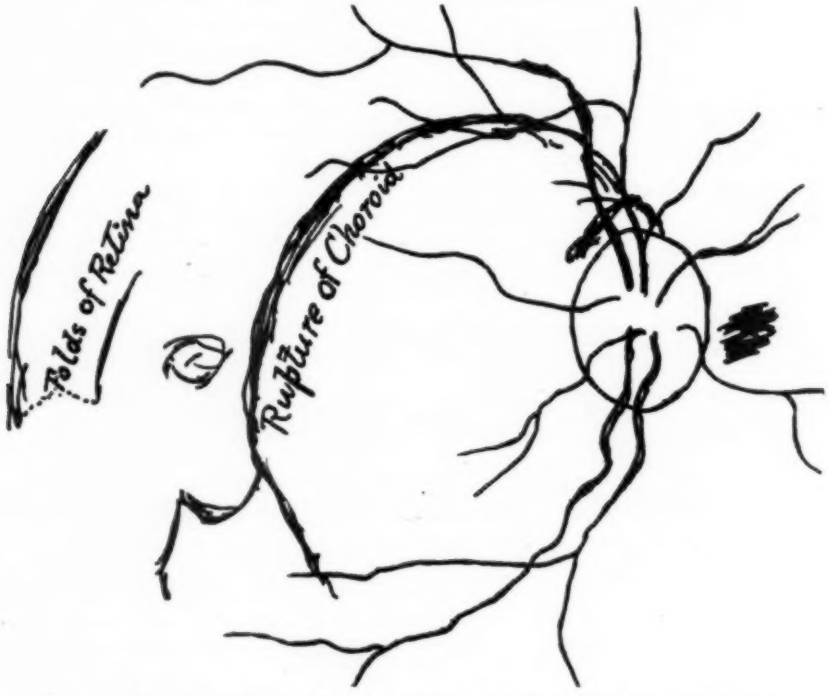


Fig. 1.—Diagram of fundus, after clearing of Vossius' ring opacity. (Hoffman).

the lens hazy. No X-ray pictures were taken as there was no reason to believe we had an intraocular foreign body. The fundus details could not be made out because of the haziness of the lens. The vision was fingers at 2 feet. Treatment consisted of atropin and hot fomentations. A diagnosis was made of Vossius ring cataract, and both the patient and the Industrial Insurance were advised of a possible good prognosis.

At the end of a week the capsular haziness seemed to be clearing and at the end of four weeks the lens was practically clear. However, the vision had improved but little, being 20/200

## CYST OF ANTERIOR CHAMBER.

EVERETT L. GOAR, M.D.

HOUSTON, TEXAS.

F. C., age 10. In August 1926 the boy was struck in the left eye by a piece of wire, receiving a penetrating wound of the cornea. After several weeks the eye became quiet, but had very little vision. It has been subject to attacks of irritation since and there has been some pain with considerable lacrimation.

A few months ago the mother noticed one eyeball was larger than the other and it has gradually enlarged since. Vision was reduced to bare light perception. The globe was defi-

nitely enlarged and the anterior chamber was quite deep, more so on the nasal side. Tension was 40 mm. The nasal two-thirds of the anterior chamber was filled with a semitransparent grayish mass, convex on its outer border, displacing the iris backward. Slit lamp examination revealed the wall to be a thin membrane of some sort, but no details could be seen. The eye was enucleated and microscopic sections showed the following interesting condition:

A membrane consisting of several layers of epithelial cells extends from the posterior surface of the cornea, diagonally across the anterior chamber to the anterior surface of the iris, being firmly attached at the pupillary border and along the anterior surface of the iris, rounding the angle of the anterior chamber and back along the posterior surface of the cornea, forming a complete sac. The iris on that side is very much thinned out. The epithelial membrane is much thicker in the free portion and in the angle of the anterior chamber. It is probably the blocking of this angle that led to the increase in tension. The optic disc shows a very shallow cupping, not at all suggestive of a glaucomatus cup.

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## TOXIC AMBLYOPIA FROM DRINKING.

GEORGE L. STRADER, M.D.

CHEYENNE, WYOMING.

A young man, twenty-four years of age, consulted us with the following history. The day before he began drinking "moonshine" at about 2:30 p. m. He drank about one pint and a half by 11 p. m. At that time he noticed that his vision was failing. Four hours later he was entirely blind. He claimed that he had no special gastric disturbance.

I saw him first at 9:30 a. m. October 10th. His vision was reduced to light perception each eye. There was moderate congestion of the retinal vessels but not marked. Otherwise, so far as I was able to judge, the fundi were normal. He complained of supraorbital headache.

I assumed that the moonshine probably contained methyl alcohol. Having seen some reference to treatment of wood alcohol blindness by lumbar puncture I asked Dr. Fox to do a puncture for me. He found the fluid under considerable pressure and withdrew 40 cc. The morning of October 12th the man could count fingers at ½ foot. That afternoon he was given a pilocarpin sweat which was repeated the following afternoon. Saturday, one week after drinking the alcohol, his vision was R. 20/20; L. with a —0.50 cyl., axis 90°, V. = 20/20. Fields roughly taken, normal for form. No color scotoma.

He went home with a letter to his physician advising strychnin and potassium iodid and we have had no word from him since.

I am aware that it is too soon to say that his vision will not ultimately be impaired. It is possible, too, that the moonshine did not contain methyl alcohol. In Ophthalmic Literature, vol. 16, p. 195, reference is made to an article by Zethelius who believes that lumbar puncture surpasses any known method of treatment for Alcoholic Amblyopia. The results were so prompt and so satisfactory in my case that I thought it worthy of a report in the JOURNAL.

Note: Patient seen November 27th, 1926. No change in vision or fundii.

## FURROW KERATITIS OR MARGINAL DYSTROPHY OF CORNEA.

L. L. McCOY, M.D.

SEATTLE, WASHINGTON.

Mr. J. C., a large, apparently healthy and active laborer, 48 years of age, was first seen January 31, 1925. Two weeks previously, patient was accidentally struck in left eye with a stick of wood; and since then the eye has been inflamed, slightly painful and discharging a small amount of "pus."

Patient said he was told ten or twelve years ago by a physician that

he had a cataract in his left eye and cataract extraction was advised, but patient refused operation. Fifteen years ago, patient took an examination for street car service, and the vision in the left eye was then very poor. It has been gradually getting worse. Occasionally for the past ten years, the eye would become moderately inflamed for a period of one to two days and then clear up. He has never had any trouble with the right eye. Patient denies ever having any other injury to his eyes. His history otherwise is irrelevant.

The examination showed the lids and tear sac to be normal; quite marked conjunctival congestion with a little lacrimation and a very small amount of mucous discharge. In the cornea, extending between three and nine o'clock, and concentric with the limbus below, was a rather deep, gray furrow 2 mm. to 4 mm. wide. There was a narrow band of clear cornea between this furrow and the limbus. The cornea above the furrow was very clear and ectatic, and presented an appearance similar to a drop of water on a window pane which is about ready to flow downward. Running into each end of the furrow, from the bulbar conjunctiva, were several small branching blood vessels. They were not visible in the furrow. At a glance, the furrow appeared like an unusual arcus senilis. The anterior chamber was very clear and deep. The pupil was semidilated and reacted very little; there seemed to be a broad coloboma of the iris below altho this could not be accurately determined. The lens and vitreous were clear, and as far as could be ascertained, the fundus and disc were normal. The vision was questionable outside of light and dark. The tension, by palpation, was normal and the muscular movements were normal.

The right eye was normal in every respect except for a very slight linear depressed opacity of the cornea, between seven and nine o'clock, with a narrow band of clear cornea, between it and the limbus. The right vision was 20/20+. There was no fluorescein staining reaction of either cornea.

The conjunctival congestion and discharge readily cleared up, with mercurochrome solution 1% instilled into the conjunctival cul de sac, t.i.d., and bichlorid ointment 1-5000 instilled at night. The ciliary congestion disappeared under atropin salve 1%, instilled once daily for three or four days. Atropin dilated the pupil very little, above what it was when first seen. After being under observation for two months, the patient dropped from sight and I have been unable to get in touch with him since. During the two months of observation and treatment, no change could be noted in the left eye, and only a very slight extension of the furrow in the right eye.

The treatment for the keratitis was according to that recommended by Dr. S. R. Gifford who reported seven cases in the January 1925 number of the AMERICAN JOURNAL OF OPHTHALMOLOGY.

A question that has arisen since seeing this case is, whether or not polyglandular therapy might not be beneficial in stopping the further extension of the disease and perhaps of even clearing it up to a greater or less extent, on the supposition that the trophic disturbance might be due to some endocrine dysfunction.

*817 Summit Ave.*

# SOCIETY PROCEEDINGS

## MINNESOTA ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY.

### Section of Ophthalmology.

November 19, 1926.

DR. JOHN L. SHELLMAN, Presiding.

### Newer Methods of Ocular Therapeusis.

DR. HARRY S. GRADLE, of Chicago, gave an address on this subject.

*Discussion.* DR. F. E. BURCH stated that when Dr. Gradle came among them they always learned something new and something profitable, and he knew the members of the Academy were very grateful for the opportunity of hearing Dr. Gradle's personal experiences which are exceedingly valuable. One objection against mercurochrome is its stain. In the treatment of dacryocystitis, in discriminating patients, Dr. Burch said he had been substituting, with quite similar effect, neoreargon in from 5% to 10% solution. He believed this drug, among the silver salts, had probably not received the recognition it should except among those who are treating urethritis.

In regard to foreign protein therapy his first observations of its use were with Dr. Joseph Miller during the war. One of his ward surgeons was in the habit of giving triple typhoid vaccine to every possible arthritic. They were given triple typhoid vaccine intravenously in four and five minim doses and often in three to ten minutes would get terrific reaction, alarming in violence but perfectly phenomenal in its results. After coming home in 1919 he heard a good deal about milk injections but was afraid to use them for a time. He finally tried out milk injections, largely at the solicitation of Dr. Boeckmann, but felt that the results were very irregular. There was no control as to the reaction to be obtained and eventually he switched to the triple typhoid vaccine and had continued its use for six years. He started in with two minims for adults, and for children in proportion, and he now starts with one half minim. In using the smaller dose as a first injection, he is guided somewhat by the leucocytosis that results. In checking up a number of cases he found a one half minim injection would result in about doubling the leucocyte count, the peak of leucocytosis appearing about eight hours after the injection. He has made it a rule not to repeat the foreign protein injection until the leucocyte count has fallen to near normal.

He took issue with Dr. Gradle as to when the leucocyte count becomes normal; for he has found that it does not subside in the majority of cases inside of three or four days. He said he had also found from experience that it is not wise to repeat the foreign protein injection until the leucocyte count does become approximately normal. As an adjunct to this in iritis and during the interim, it is his practice now in all cases to inject sodium salicylate in doses of 15 or 20 grains (ampoules) each day. In addition to this, a local measure which he believes is of very great therapeutic value, is the use of brine or dionin when the effect is at its height. This enhances the effect on the eye of the foreign protein injection. There is no doubt at all about these two supplementary measures so far as his experience has gone.

He stated that one disadvantage of milk is the irregularity of its action and the failure to control the amount of effect that one is going to have.

In two classes of patients he would warn against the use of foreign protein therapy; that is in the very old and in the diabetic. He said he had had two patients which have alarmed him very much in cases of this type.

One other therapeutic measure, which does not have to do with drugs and which he would like to call to attention, was a type of ptosis spectacles shown by Mr. Mackay at the Oxford Congress. Dr. Burch said that in the last year he had had two cases of total external ophthalmoplegia in which the use of these spectacles had been of

very great help. Also they had been of value in a child where the levators had become weak from disuse, due to the ptosis. He expected to do an operation on this boy eventually but the use of these spectacles in training him to use his superior recti and to hold up his head had proven of very great advantage. He recommends them for what they may do in selected cases.

DR. G. C. DITTMAN asked Dr. Gradle what experience he had had with diathermia in the treatment of corneal ulcers.

DR. GRADLE said that he had had none.

DR. BURCH inquiring as to the use of the quartz lamp and dosage, asked Dr. Gradle how soon he got a tolerance established and with what rapidity the dosage was increased.

DR. GRADLE said he was not using the water cooled quartz lamp, but at present he was using an apparatus which Zeiss makes. The exposure is not a matter of seconds but of minutes; five to ten minutes, one to three times a day depending on the reaction. There is very little reaction; a slight hyperemia of the conjunctiva results but nothing like that from exposure of the skin to the Alpine lamp. In commencing treatment, he gave a three-minute exposure, and in some cases a ten-minute exposure. All the heat is eliminated by the water filter.

DR. J. L. ROBINSON asked if Dr. Gradle would not use the quartz lamp.

DR. GRADLE replied that he had had no experience with the quartz lamp except in the case of a dentist's wife who came in one day with extreme photophobia. In getting the history, Dr. Gradle said that about 12 hours previously an agent, who was a friend of the family and who was selling one of the quartz lamps, was at their house and she was complaining of sinusitis. The agent advised exposure to the lamp and did not use sufficient protection. She had the most terrific ocular reaction that Dr. Gradle had ever seen.

DR. E. S. STROUT asked Dr. Gradle if he used milk injections in gonorrheal infections and especially in gonorrheal iritis.

DR. GRADLE stated that he could not answer that question offhand because he could not put his finger specifically on a single case for the last several years where he had been convinced that the iritis was due to gonorrheal infection. He said he has used it in ophthalmia but he could not say that milk injections did any greater good in gonorrheal ophthalmia, tho he had tried them out.

DR. STROUT asked Dr. Gradle if he thought that the use of adrenalin preliminary to cataract extraction, where the patient has high blood pressure, lessened the danger of hemorrhage.

DR. GRADLE replied that he did not, and that adrenalin must be used very cautiously in high pressure cases. The effect of adrenalin is systemic. Dr. Gradle said this seemed to be entirely lacking in ephedrin, but that this is still experimental.

DR. DITTMAN said, in speaking of ephedrin, that he would like to cite an experience of his own. The case was one of periodic hemorrhages under the conjunctiva, in which adrenalin had been used. Dr. Dittman became tired of its use and decided to try ephedrin, which is the proprietary trade name put out by Eli Lilly & Company. As he had never read any literature on its use in relation to eye conditions, Dr. Dittman thought best to try it first on himself, using small amounts. The symptoms it produced were a conjunctivitis, a feeling of increased tension of the eyeball, and the vision became blurred as after the use of cocain. This lasted for about two hours. He had used a three per cent solution. After this experience Dr. Dittman did not use the drug on his patient.

Dr. Dittman stated that ephedrin is a sulphate of the Chinese drug "Ma-Haung" and at present there is a firm in Chicago experimenting with the chlorid salt of the drug which may prove of greater value in eye work but in a much weaker dilution than three per cent.

DR. J. F. FULTON stated that one of the most encouraging signs of progressive ophthalmology is the increasing interest that clinicians are taking in the intelligent application of therapeu-

tic agents as indicated in the modern literature on the subject.

Dr. Gifford, of Omaha, had recently written several papers, published in the American Journal of Ophthalmology, upon the physiologic action of salicylates, pointing out how the satisfactory results are obtained that one frequently gets by the administration of this very valuable drug.

The publication and popular demand for textbooks recently published, such as Ocular Therapeutics, by Ernst Frank, translated by Loeb; and the second edition of the complete treatise of Ocular Therapeutics, by A. Darier, he thought was another indication of the rapidly increasing interest that fellow practitioners are taking in this subject.

Dr. Fulton said that tonight the Academy had had the very great pleasure of listening to one of their most progressive teachers giving his experience in regard to the use of three of the most recent therapeutic agents.

In regard to adrenalin as a mydriatic, especially when associated with atropin, Dr. Fulton said his attention was recently called to a paper of Lippincott in which he claimed that under certain conditions the corneal nerves have an inhibiting effect upon the absorption of drugs, thus failing to act upon the iris. Under such conditions this can be overcome by applying the drug boiling hot, which results in immediate dilatation of the pupils. (v. 6, p. 631, A. J. O.)

Dr. Fulton asked Dr. Gradle if he had had any experience in the use of synthetic adrenalin. Dr. Fulton said he looked upon foreign proteins as the most important and most useful therapeutic agent which had been placed at the disposal of modern ophthalmalogists. He said that milk had been so satisfactory in most of the cases in which he had used it that he did not see any reason for resorting to the more complicated treatment required by other proteins. However, he expressed himself as thinking it quite likely that each one gets the best results from the protein with which he is the most familiar.

Dr. Carl L. Larsen said he was very glad to hear Dr. Gradle speak of milk as a foreign protein. He had been using it for five years and, like Dr. Gradle, had used it according to the Vienna teaching. He had seen so many splendid results that he was more enthusiastic than ever about its use, particularly in acute inflammation of the anterior segment of the eye.

He wished to emphasize one point, which Dr. Gradle mentioned, and that was that the milk should not be pasteurized, and that the use of pasteurized milk was probably one reason why many men have not had good results from the use of milk. Another reason is that they have given too small doses. Dr. Larsen said he always begins with 10 c.c. He stated that there are two contraindications to the use of milk; one is diabetes, and the other tuberculosis. He had never experienced any anaphylaxis, and wondered whether Dr. Gradle had.

Dr. Gradle stated that he had had none yet.

Dr. Paul Berrisford asked Dr. Gradle about the reason for the reduction of tension after the use of adrenalin.

Dr. Gradle stated that in addition to the stimulation of the sympathetics in the eye and in the orbit, adrenalin also causes a very marked vascular contraction per se. It is known that the tension of the eye is very markedly reduced by the use of adrenalin. In a secondary glaucoma one may find that there is a deep anterior chamber because the stoppage is due not so much to the absolute blockage of the chamber angles by the iris being pushed forward as it is by the coagulation of the albumin in the aqueous. The use of adrenalin will decrease the anteroposterior diameter of the iris by emptying the vessels of the iris and at the same time it tends to pull the iris out of the chamber angle. One will find, after the use of adrenalin, that the chamber will be deeper than before its use. That is the explanation that is given at present. Whether or not it is correct, no one can say.

Dr. W. W. Lewis asked Dr. Gradle whether there was a difference in using

adrenalin at the anterior part of the eye for the purpose of mydriasis and using it at the posterior part of the eye for the purpose of reducing intraocular tension; and, if so, whether it would be better to use a long thin needle to reach the posterior part of the eye in the region of the posterior ciliary ganglia, where tension reduction action is wanted.

DR. GRADLE replied that it seems not to make a great deal of difference where the adrenalin is injected because the important point is the bringing of the drug into the lymphatic tissue. Some people have used adrenalin in the retrobulbar manner Dr. Lewis spoke of; still the same effect is obtained when the adrenalin is put into the conjunctival sac. On the other hand one will obtain exactly the same effect when adrenalin is absorbed into the anterior part thru a pledget of cotton. Dr. Gradle said he had not used adrenalin in retrobulbar injections such as Dr. Lewis mentioned. When adrenalin is used for the purpose of a mydriatic, it must be followed with a miotic to contract the pupil.

Adrenalin was originally a prepared compound from the adrenals, and was manufactured by the large slaughter houses. It has been manufactured equally successfully by large houses like Parke Davis. Dr. Gradle said he had not been able to find any difference in effect between the natural form and the synthetic form. It is put up in sterile ampoules.

DR. BROWN stated, in regard to the physiologic action of epinephin, that Cushny has brought out the fact that the natural levorotatory epinephrin is twice as active as a vasoconstrictor as is the synthetic dextrorotatory isomer. Later he found that the levorotatory base acts twelve to fifteen times as strongly as the dextrorotatory on the sympathetic endings in the vessels and on those controlling the glycogenic function in the liver.

That is one of the Charles E. Dohme Memorial Lectures, third course 1925, on the Biologic Relations of Optically Isomeric Substances.

DR. FULTON asked Dr. Gradle what strength eserin he used.

DR. GRADLE replied that he used one per cent as a rule, or just a little under that; and that of course it must be fresh.

C. C. CAMP,
Recorder.

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## MEMPHIS SOCIETY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY.

January 11, 1927.

DR. E. D. WATKINS, Presiding.

**Ectropion.**

DR. JAMES B. STANFORD presented a patient on whom he had done the Kuhnt-Meller operation for ectropion of the lower lids. The lids of a colored fireman about 45 years old, had turned out for four years. He had suffered considerable discomfort from exposure of the conjunctiva. The correction was very good.

**Ulcerative Keratitis and Ectropion.**

DR. A. C. LEWIS reported the case of T. H., negro man, aged 36, painter by trade. He was first seen on July 10, 1926, with multiple superficial ulcers on the right cornea. The lower lid of the same eye was thick and everted.

The patient said that he got some foreign matter in the eye while at work several weeks earlier and attributed pain and inflammation present to this cause.

Under treatment of atropin, dionin, bichlorid salve and an eye patch, the eye improved promptly, but would never clear up entirely and relapses were frequent.

About the middle of August washing of the left maxillary antrum revealed much very foul pus. Next day the eye was greatly improved. By continuing antrum irrigations at frequent intervals the eye continued to improve, but would relapse whenever he would fail to report for his treatment.

The connection between the keratitis and antrum disease was so marked that all eye treatment was stopped. As long as the antrum was kept fairly

clean the eye did well; as soon as he allowed it to become foul the keratitis promptly returned.

The patient needs a radical antrum operation but he has been unable to get him into the hospital.

An interesting feature of this case was that altho the left antrum was the diseased one, the left eye remained undisturbed.

**Scleritis.**

Dr. A. C. Lewis reported the case of Mr. H. T., aged 46, who consulted him on Dec. 27, 1926, with scleritis of O. S. He had had some trouble in O. D. two months ago for which he was treated by another oculist for several weeks. He had several similar attacks in the past four years, sometimes in one and again in the other eye.

Nasal and roentgen ray examination showed both antra and ethmoids cloudy and containing pus. The nose was greatly obstructed by a thick and irregular nasal septum. Jan. 4, 1927, the eye was unimproved. Submucous resection of nasal septum and large intranasal opening into both antra were made. Today the eye was practically normal. He will probably need some ethmoidal operation done later but these cells were much better since the nose was opened last week and the antra cleaned out.

*Discussion.* Dr. Ellett thought episcleritis cases the most troublesome in ophthalmology. He said that they were all caused by focal infection or some systemic disease. He spoke of one patient who was cured by treating of his pyelitis.

M. G. Seligstein,
Secretary.

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## PITTSBURGH OPHTHALMOLOGICAL SOCIETY.

December 27, 1926.

Dr. E. B. Heckel, Presiding.

**Retinal Cyst with Detachment of Retina.**

Dr. Adolph Krebs presented a female school teacher, 20 years old, who was referred on account of failing vision in the right eye, Dec. 4, 1926.

She reports vision failing for the last 12 months accompanied by attacks of blurring with pain over the eyes. Consultation with an oculist Nov. 20, 1926, resulted in the finding of detached retina with macular changes and a vision of 1/20 in the right eye.

On Dec. 4, 1926, vision of right eye was 7/30. This was unimproved by correction of a low grade hyperopic astigmatism. The media were clear and below and well forward was a cyst like protrusion extending from about six to eight o'clock, traversed by retinal vessels and markedly dome shaped. The macular region was the site of grey streaks and some atrophy evidently the site of reattachment of an old separation. The peripheral fundus showed areas of chorioretinitis.

Oral examination (including roentgen ray), urinalysis, blood examination and blood Wassermann tests, were all negative. No evidence of pathology was found by transillumination and roentgen ray of the accessory sinuses. Tonsillectomy had been done at eight years of age. Physical examination was negative.

The left eye had a vision of 7/8 correctible to 7/6 with a —.50 sphere and the media were clear and the fundus was negative.

*Discussion.* Dr. G. H. Schuman asks if a hole in the retina was evident and Dr. Krebs answered that hole, if present, was in the macular region of old reattachment and consequently obliterated.

Dr. E. B. Heckel suggests the possibility of parasite but motion in the detachment is denied by Dr. Krebs.

**Bilateral Spontaneous Luxation of the Lens.**

Dr. A. A. Schlegel presented E. Y., male, aged 13, who was seen first in the out patient department of Allegheny General Hospital, April 20, 1926. There was no family history of eye trouble. The patient was negative for constitutional disease. The family state that the patient possessed good vision until about one year ago when the vision suddenly became bad, in the right eye, followed closely by a failing left eye. The left eye was at this time far the worse.

Inspection shows right and left eyes devoid of any signs of inflammation or irritation. The lens of the right eye is completely luxated into the anterior chamber, lying on the freely movable iris. The position of the lens changes with movement of the head, returning to the fossa when the head is tilted back. The iris is normal in all respects except that the pupil is dilated but can be contracted by eserin but not to the extent that is usually possible by eserin. The vitreous shows a few small floating opacities. The fundus is negative. Vision of the right eye is 5/200. Left eye shows subluxation of the lens down and in, with media clear and fundus negative. Vision of the left eye was 20/200 correctible to 20/30 with + 11.00 sph. +1.00 cy. ax. 90°. The patient wears the correction with comfort and does well in school. The treatment has consisted of glasses as the lens remains of crystal clearness and the left eye has 20/30 vision with correction.

*Discussion.* The Society as a whole advised the hands off policy in this case unless symptoms of irritation or clouding of the lens resulted.

Dr. A. Krebs cited a case of luxation of the lens into the anterior chamber that was caught by the sphincter after the instillation of eserin with resultant glaucoma.

Dr. G. H. Schuman commented on the crystal clearness of these totally dislocated lenses when the deformity had lasted over a long period of time.

**Spontaneous Anterior Luxation of Cataractous Lens.**

Dr. A. A. Schlegel exhibited this case. March 9, 1925, M. M., aged 80, complained of poor vision for six years in the right eye. The left eye was impaired since injury by flying steel thirty years ago. Inspection shows pupils and reactions normal. Right eye shows immature senile cataract with obscuration of the fundus, and light perception and projection good. Left eye shows floating, freely moving lens remnant behind iris. The remnant is about 1/5 size of normal lens. Vitreous is fluid with a few opacities. Vision right and left was fingers at three feet. When the lens does not obstruct the pupillary space a +9.00 sphere gives a vision of 20/30 in the left eye. Jan. 14, 1926, the patient reported with a sudden impairment of vision in the left eye and inspection shows a total luxation of hypermature lens into the anterior chamber. There is an attachment of capsule that remains attached to the deeper eye and that notches the iris as it makes pressure on it. The eye is quiet and tolerates the lens without visible evidence of irritation.

*Discussion.* Dr. E. B. Heckel advises the extraction of the right cataract on maturity and stresses the dangers that may be encountered in removal of the lens of the left eye on account of the fluid vitreous and the attachment of the capsule to the deeper eye.

**Endogenous Panophthalmitis with Rupture of Globe.**

Dr. Thos. H. Manley Jr. presented a carpenter, aged 37, married, who gave a history of pleurisy while serving in the Canadian Army. Many years ago he had an attack of articular rheumatism in the right ankle. Family history was negative. Nov. 24, 1924, the patient developed a progressive articular rheumatism of the right ankle that rapidly invaded all the principal joints of the limbs and eventually the spine. The joints were intensely swollen and body movement was exquisitely painful. Temperature and pulse range was around 104° and 130 respectively. The heart was not involved to the extent to cause appreciable lesions. The patient lay in a low muttering delirium from which he could be aroused. Enormous doses of salicylates were administered by mouth. About ten days later, on consultation, thru the courtesy of Dr. Jas. Logan the right eye was found to be inflamed and painful, the pupil was dilated and fixed; the lens was slightly hazy, and deep in the vitreous a dense yellowish white and massive exudate could be seen. This exudate from a distance and by oblique ilumination simulated the reflex from a glioma. The tension was elevated to touch and

the conjunctival and ciliary injection was less than we expected considering the extent and gravity of the pathology. The cornea at this time and subsequently remained clear, as also the aqueous. The iris was unchanged in color but motion was absent. The examination of the mouth and throat showed extensive pyorrhea with numerous bad teeth, and enlarged tonsils full of crypts. Nine days later the right globe ruptured at a point behind and slightly below the insertion of the external rectus. The ocular pain subsided following this rupture. Above the rupture site the conjunctiva became edematous and inflamed but did not rupture. This subsided in about five days and the sclera healed by a dimpling cicatrix.

The eye quickly regained its normal color but remained soft. Two months later the opposite side of the globe developed a similar dimpling. Examination Dec. 20, 1926, by Dr. Alexander, showed heart, lungs, thyroid and kidneys negative. The involved joints all remained slightly tender to pressure and the spine was the seat of extensive ankylosis for which a body cast was applied. The eye was shrunken and soft and a shell prosthesis was worn over the globe until the patient felt physically fit for an enucleation. This was done later under gas ether anesthesia.

There was no attempt to suture the muscles and the conjunctiva was drawn over the separated muscle ends. An effort was made to separate these ends as more motion is given to the prosthesis when this is done than when they are bunched or tied together. The patient made an uneventful recovery and the prosthesis was fitted three weeks later and worn with comfort and has a good motion.

**Unilateral Choked Disc from Focal Infection.**

Dr. Thos. H. Manley presented the case of F. R., aged 11, who on Oct. 12, 1926, reported to the out patient department of the Alleghany General Hospital complaining of dimness of vision of the right eye. He had received a blow in the right eye about two weeks previously by a knotted handkerchief. The pain at this time was not severe and did not cause him to stop playing. He noticed that about ten days before reporting the vision was poor in the right eye. The vision of the right eye was 20/70 and of the left 20/20. Pupils were unequal but mobile, the right being largest and slightly sluggish to direct light stimulation. Ophthalmoscopic examination of right eye showed elevation of the disc of 3 diopters with little retinitis except as sharply defined about the papilla. The balance of the fundus and media was negative. The left eye was negative except for slight fullness of the retinal veins. The eyes were pale and no pain was complained of.

Physical examination showed a moderately well developed male child with normal osseous growth. Ears, nose, teeth and chest were negative. The heart was normal as to size and rhythm and murmurs were not present. Pulse rate was 96; temperature 98° and blood pressure 90/68. The tonsils were enlarged and full of crypts and the cervical glands were palpable. The sinuses were negative to transillumination and roentgen ray. Neurologic examination by Dr. Shapiro was negative in all respects including Barany and caloric tests. There was no evidence of any cranial pathology. Roentgen ray of the skull showed evidence of thinning in the occipital and frontal regions without definite evidence of pressure. The pineal gland was calcified and slightly enlarged. The pituitary region was normal. On Nov. 12, fields taken with 2 mm. object, in good light, showed, in the right eye, a general contracture for white, well inside 20 degrees. The field was less contracted above and below. The color fields were all contracted somewhat but not proportionately to the white. The left eye showed a general contracture for white, less above and below than at the sides. The blind spot was slightly enlarged. The fields for colors were contracted especially for red and green.

On Nov. 9, the patient developed acute attack of tonsillitis and choking increased to 5 diopters and vision fell

to light perception in the right eye. Immediate tonsillectomy was advised and done. On Nov. 11, choking remained the same but vision was slightly improved. Blood chemistry done at this time showed the following: nonprotein nitrogen 31.8 mg., urea nitrogen 15.0 mg. and blood sugar 0.1%. Wassermann blood test was negative. The next day choking was the same but vision was still improving. On the 23rd choking less and fields larger and vision under atropin was 20/200. On Dec. 10th choking was about one diopter and vision 20/70 right and 20/20 left. Dec. 21st vision was 20/50 (atropin) correctible to 20/20 with +2.25 sphere. Jan. 7, 1927, vision was 20/20 in each eye without residual change in the fundus except for a little haziness about the disc edge. The field is gradually approaching normal and the patient has returned to school and uses the eye without discomfort.

THOS. H. MANLEY Jr.,
Secretary.

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## KANSAS CITY EYE, EAR, NOSE AND THROAT SOCIETY.

NOVEMBER 16, 1926.

DR. J. W. KIMBERLIN, Presiding.

### Headaches of Ocular Origin.

DR. W. G. GILLETT (by invitation) stated that it has been estimated by various authorities that forty per cent of all headaches have an ocular factor, and that seventy-five per cent of all bilateral frontal headaches are due to eyestrain. These figures may seem high but it is certain that headache is probably the most common symptom encountered in the practice of ophthalmology.

The term "eyestrain" is a useful one but there are so many different explanations for this condition that few of us have the same ideas regarding it. Some believe that all the pain of eyestrain is due to spasm of the ciliary muscle. Others feel that fatigue and hyperesthesia of the retina are among the salient factors, while still others believe that muscular imbalance is more important that anything else. According to Lancaster it is the adjusting mechanism of the eye that is strained and this adjusting mechanism is composed of two parts; first, the focusing mechanism, which secures a clear image on the retina, and second, the fixation mechanism which fixes the eye on the object to be looked at. He also points out that eyestrain is more than the fatigue or strain of this mechanism, for it has been shown that the extrinsic muscles are capable of pulling one hundred times the load ever required in ordinary eye movements and we know that there are thousands of people with hyperopia of quite large degrees, who are absolutely comfortable without correcting glasses. This other factor which enters into eyestrain is the fatigue of the elaborate and intricate system for coordinating these muscles, i. e., fatigue of their motor nerve cells and centers.

If we agree that fatigue or strain of one or all of the above mechanisms can produce headaches then under what conditions do these headaches become manifest? They most commonly become manifest when normal mechanism has some handicap such as a refractive error to contend with. The refraction in one eye may be different from the other. The patient may be recovering from sickness, operation or general debilitating condition, in which all the muscles of the body are weakened.

Undue strain may be placed on the mechanism because of poor light, small print or an unsteady object to be focused. The media of the eye may be clouded or the retina diseased thus throwing a more constant effort on the focusing mechanism in an effort to secure a clearer picture. These are only a few of the many exciting causes which might be mentioned.

Most ocular headaches are frontal and bilateral, they follow long continued use of the eyes in a poorly lighted room, etc., but eye headaches have been described as low down as the twelfth dorsal vertebra and in every conceivable place on the head. Many other conditions have produced headaches in exactly the same places. Some authors would be very specific about eye headaches and give them a definite order of frequency such as (1)

supraorbital, (2) deep orbital, (3) frontoocipital, (4) temporal. Kearney would even go so far as to classify the refractive error by the position of the headache, a frontal or supraorbital headache indicates a hyperopic error, an occipital headache an imbalance of the extrinsic muscles and temporal headache an astigmatic error. A headache occurring in the frontal and temporal region would therefore suggest a compound hyperopic astigmatism, etc.

Ocular headaches are not often encountered early in the morning tho there is one form which is supposed to be due to sudden spasm of the ciliary muscle on first opening the eyes. This is seen in people who have used their eyes far in excess of normal on the preceding day. Myopic patients, of course, have very few headaches which are directly attributed to their eyes.

The headaches of glaucoma are important because they are often in the occipital region and so insidious that the patient does not associate them in any way with his eyes. The condition is rare enough so that it is not thought of by the general practitioner and is very often overlooked by the experienced ophthalmologist. These cases are usually past middle life. The course is chronic and is very frequently associated with nephritis or a mild arteriosclerosis so that the attending physician is perfectly willing to attach the headache to one or other of these more frequent causes. When these stubborn cases are encountered they should of course be sent at once to the oculist where the ophthalmoscopic findings, fields and tension can be obtained and the proper treatment instituted.

In the next group there are a number of interesting conditions where the headache is not ocular but something about the eye betrays the true cause of the headache. Only a few of these conditions will be taken up.

Bitemporal headaches, not unlike the headaches of eyestrain, are among the earliest symptoms of tumor of the pituitary gland and this symptom alone may bring the patient to the oculist.

In closing he stated that it might be well to emphasize the fact that in headaches arising from affections of the nose the symptoms are often described as being worse the first thing in the morning and improving later on in the day. Just the opposite is true of most headaches developing from eyestrain.

**Headaches of Nasal Origin.**

Dr. James C. Braswell said that almost all of the more common forms of headache are correctable if the cause is ascertained and then removed.

Pain may be regarded as a reaction of the organism in part or as a whole, to harmful influences giving a warning in consciousness that some activity prejudicial to the health of the tissue is operative. Biologists claim that the movements of expansion and contraction of protoplasm are primordial expressions of pleasure and pain sense, expanding to pleasure, and contracting to pain or harmful impulses, hence any agency in the system, which, thru pressure, chemical or irritation, causes undue contraction of the nerve protoplasm, tends to cause pain. Pain sensations are transmitted to the brain centers thru the afferent or sensory nerves and the pain is referred to the origin of the nerve fiber, whether the irritant is applied to the periphery or to any part of the nerve in its course to the brain.

Bearing in mind the nerve supply of the nose, it is easy for one to reach the conclusion that lesions in the upper anterior part of the nasal chamber and the anterior ethmoid and frontal sinuses affect the anterior ethmoid terminations and produce pain referred to the distribution of the first division of the fifth nerve. On the other hand lesions in other parts of the nasal cavity which are in close relation to the sphenopalatine ganglion and its afferent and efferent trunks, may produce pain referable to the distribution of the second division.

The pain of an acute sinusitis is characterized by the daily occurrence. In very severe cases with suppuration in which there is no drainage, the pain may be constant; however, it is usually more intense during the forenoon,

abating during the afternoon and evening. The location of the pain depends upon the sinus involved. In acute frontal sinusitis the pain is located in and about the eye and sinus combined with tenderness above and behind the inner canthus. The pain in acute maxillary sinusitis is located in the cheek and upper jaw and may be referred to the teeth, eye, supraorbital region and sometimes to the ear. In acute ethmoiditis and sphenoiditis the pain is usually quite intense and apparently deep seated. The area involved is that supplied by the nasal ganglion. In some cases the pain may be referred to some remote region, such as the occiput, ear and shoulder.

In cases of chronic frontal and maxillary sinusitis pain is relatively infrequent except during acute exacerbations when it simulates the acute conditions.

The diagnosis of acute inflammations of the sinuses is relatively simple and can be made from the history, intranasal inspection, transillumination and roentgen ray. In the posterior ethmoids and sphenoids the problem is more complex and it is frequently necessary to apply all means of examinations at our disposal. Cocainization of the nasal ganglion does not relieve pain from a lesion in the sphenoid sinus, but it may be relieved by cocainization of the sphenoid sinus. Due to the wide variation in the interpretation of pain in this area one is justified in proceeding with caution in an effort to determine the character, type and location of pain presented for diagnosis.

Headaches resulting from anatomic variations in the nose causing pressure contacts are by no means uncommon. Pressure headaches resulting from deviations or thickening of the posterior part of the septum or enlarged turbinate occur with frequency. The cause of such contacts may be traceable to acute inflammations or external irritants. The vacuum headache described by Sluder necessarily falls under this type. In many instances marked pressure contact is present in the nose without any evidence of pain and the logical deduction is that the local condition is only a factor in the cause of the pain.

**Headaches of Intracranial Origin.**

Dr. Frank Tenchenor (by invitation) mentioned that headache alone is rarely diagnostic of intracranial disease. It is its association with neurologic and other physical symptoms that a diagnosis, and particularly a localization of intracranial disease is possible. However, with a knowledge of the nerve supply of the cranial contents, headaches may be very helpful in diagnosis in the absence of definite localizing signs.

While the brain is the perceptive center of all sensation, it is apparently insensitive or incapable of initiating painful stimuli. It may be cut at operation without pain to a conscious patient. The meninges are, however, quite sensitive to pain, particularly to stretching and compression. It is from the meninges, particularly the dura, that headache is derived.

Headache of intracranial origin is chiefly the result of meningeal irritation or of compression. The first will be referred to as irritative and the second as mechanical. They may appear separately, but are frequently present in combination.

Irritative headache is the result of early localized inflammatory reaction, vascular disease, brain tumors, etc., which cause dural irritation. The dura in contact with adjacent infected paranasal sinuses, infected mastoid or osteomyelitis of the skull thru irritation or early inflammatory reaction causes headache. Varicosities, aneurism or sclerosis of the pial or dural vessels have similar irritative effects as do also tumors of meningeal or cortical origin. Exostosis of the inner table of the skull or other osteal tumors, cortical or meningeal scars or any other condition which causes meningeal irritation, without evidence of increase of intracranial pressure, may be included. Characteristic of this type is more or less localized headache, of a dull, sharp or boring type. More commonly it is a diffuse headache with increased intensity at the site of the local irritation. Frequently the scalp is painful or sensitive to pressure over the site of local irritation, and percussion over this area increases the intensity of the headache.

It may be continual, periodic or intermittent.

As these etiologic factors increase in extent, the headache tends to become more diffuse and of greater intensity. This is particularly true of tumors and inflammatory conditions with localized meningitis, extradural, intradural and brain abscesses. Soon an increase of intracranial pressure exists and the mechanical factor enters.

Mechanical headache is the result of a change of intracranial pressure. Any change in intracranial pressure may cause headache.

A reduction of intracranial pressure may produce headache as illustrated by the socalled spinal puncture headache which follows the rapid withdrawal of an excessive amount of cerebrospinal fluid. This headache is credited to loss of the water bed in the basilar cerebrospinal fluid cisterns, so that the weight of the brain rests upon and compresses the nerves of the dura of the base, where the nerve supply is very rich. It is a diffuse, throbbing headache with a tendency to increased intensity in the frontal and occipital regions. A reclining position with lowering of the head gives relief.

Headache from increase of intracranial pressure is well known. It is a very common occurrence with brain tumors and cysts, tumors of inner tables of the skull, meningeal and vascular tumors, brain abscess, cerebral edema, intracranial hemorrhage, brain trauma, meningitis, encephalitis, sinus thrombosis, hydrocephalus or any other condition which may increase intracranial pressure. The headache characteristic of this condition is a deep, diffuse pain which increases in severity as the intracranial pressure increases and has periods in which the pain is throbbing or pulsating. It also has a tendency to increased intensity in the frontal and occipital regions. When the intracranial pressure is high the throbbing increases and the patient frequently states that the head feels as tho it would burst. Sneezing, coughing, straining, etc., increase the intensity of the headache by suddenly increasing intracranial pressure. This headache may be continuous and of increasing severity, but peculiarly it tends to become paroxysmal and intermittent. Exceedingly high pressure tends to render the patient stuporous or unconscious, but in instances where the intracranial hypertension is prolonged the headaches may subside before stupor or coma intervenes. This is probably the result of pressure inhibition of the pain fibers or centers.

The intermittent feature of the mechanical headache is interesting, and is common in patients with prolonged increase of intracranial pressure, as with brain tumor. With lesions in the anterior and middle fossae, without hydrocephalus, it is probably due to variations in the blood supply, with resultant variations in the amounts of cerebrospinal fluid or cerebral edema present. In lesions of the cerebellum or posterior fossa the flow of cerebrospinal fluid is thru the aqueduct of Sylvius or the fourth ventricles, resulting in internal hydrocephalus, with an increase of the headache. When pressure in the cerebral ventricles becomes high enough to force a passage thru the compressed aqueduct and empty the ventricles the intracranial pressure is reduced by absorption of the fluid and the headache subsides. This occurs in cycles and accounts for the intermittent character of the headache.

Frontal lesions (including tumors, abscess, etc.), produce diffuse headache, with increased intensity in the frontal region and frequently referred pain to the occiput. In frontal lobe abscess the headache is an early sign, while in frontal tumors it may not appear until late. This is particularly true of glioma, which absorbs and replaces brain tissue, thus causing an increase of intracranial pressure only after the tumor has reached a considerable size. This is equally true of gliomata elsewhere. Tumors which displace and compress brain tissue produce headache and intracranial pressure earlier. Choked disc is a late sign in frontal lesions. Motor aphasia and signs of involvement of the motor areas may occur.

Lesions of the cerebellum and posterior fossa usually produce headache as an early sign. The choked disc may appear early and show the highest degree of swelling. The headache is

occipital and projected thru the center of the head to the frontal region. Diffuse throbbing headache accompanies it. There is usually some distress, or stiffness of the neck. The presence of cerebellar ataxia, vertigo and nystagmus complete the picture.

Lesions of the middle fossa produce headache of the diffuse variety with increased intensity in the temporal regions. There may be headache of greater intensity on the side of the lesion or bitemporal headache. Deep bilateral headache occasionally occurs. The neurologic signs are diversified, hemiplegia and aphasia being frequent. "Uncinate fits" and the "Dream state" occasionally accompany lesions deep in the temporal lobes.

Pituitary headache is of a deep, bursting, bitemporal character, and frequently there is much pain deep in the orbit. Hemianopsia, enlargement of the sella turcica, and pituitary dyscrasias may be present to some degree.

Lesions of the parietal lobes are characterized by paresthesias, astereognosis and at times involvement of the motor area. The homonymous hemianopsias characterize tumors of the occipital lobes.

Tic douloureux is characterized by sharp, paroxysmal, lightening like pain which shoots thru the areas supplied by one or more divisions of the fifth cranial nerve. While headache may accompany it, pain is more in the peripheral distribution in the nerve in the face, temple and forehead. When it is caused by compression of the Gasserian ganglion, as in brain tumor, the neuralgic pains are accompanied by headache deep in the temporal region and orbit, frequently unilateral, occasionally diffuse. Infections of the paranasal sinuses and teeth cause pains which closely resemble tic douloureux, and must be ruled out before a diagnosis of tic douloureux is made, especially before the radical operation for its relief is done.

The headache with meningitis is very intense, diffuse and throbbing in character and referred to the frontal region. Later there is occipital headache, with rigidity of the neck muscles, Kernig's sign, opisthotonus and purulent cerebrospinal fluid. The headache of syphilitic meningitis is particularly active at night.

The headache of cerebral edema is typical of the diffuse mechanical headache. Cerebral edema is a common condition. It accompanies many of the intracranial lesions previously discussed. It commonly occurs with nephritis, cardiovascular disease, eclampsia, alcoholism and numerous constitutional diseases. Many of the toxic headaches occur as a result of cerebral edema.

*Discussion.* Dr. Morris H. Clark examined the records of five hundred patients who complained of defective vision. Forty-four percent of these included headache in their recital of symptoms. The type or size of errors or the location of the pain was found to be of little importance in a differential diagnosis. However, the time of onset, i. e., (after reading, writing or picture shows) plus a study of nervous stability of the patient, were of prognostic and diagnostic value.

Dr. J. R. Scott mentioned a case with persistent headaches in a male, aged sixty, refracted under atropin twice between thirty and thirty-five, wearing compound hyperopic lenses. At about forty-five he began having headaches, infrequent but severe, that became unbearable on stooping or on lateral movements of the head, as he described them "Felt like the whole top of my head was coming off." He could not discover any relationship of headache to excessive use of eyes. Headaches relieved by adding a plus 1.00 sph. to correction of left eye, which brought the vision, which had dropped, again to 20/15, the former acuity and present vision of right eye.

Dr. H. G. Tureman called attention to the fact that headaches in school children which were often treated as bilious sick headaches were relieved by the rests and cathartics given when they could have been entirely prevented by correcting a low grade astigmatism.

Dr. J. G. Dorsey mentioned types of headaches seen by the ophthalmologist that are not due to the eyes. They were vertical headaches in young women. These are most commonly due to uterine disturbances. Another type is the supraorbital headaches

coming on at a certain time of the day. The latter are usually relieved by quinine. Some headaches are due to gastric disturbances, these are relieved by cleaning out the bowels.

Dr. Paul Lux mentioned that headaches may be caused by myalgia. He said that he had seen 79 such cases. These may be accompanied by nausea and tinitus.

Dr. Clarence Earnest mentioned that in his case drinking a lot of water at the onset of the prodromal symptoms of migraine would ward off the headache.

Dr. H. E. Thomason reviewed the records of the patients, having had a submucous resection of the nasal septum, at St. Mary's Hospital, in the past two years. The symptoms these patients complained of were, first, difficulty in breathing. Seventy-five per cent of those complaining of headaches, answered that they had been cured of their headaches. The latter must have been due to intranasal pressure. This fact can usually be determined by cocainizing the sphenopalatine ganglions; if the headache is due to pressure, it will relieve it.

Dr. Hal Foster called attention to the large number of patients having a headache due to constipation.

Dr. Robert Curdy mentioned that while in many cases there is a single cause for the headache, in quite as many there is a combination of causes and in these, correction of the error of refraction brings about only partial relief, or even none. It is probable that the majority of cases of headaches accompanied by symptoms of asthenopia and not relieved by glasses are due to disturbance in the frontal sinus.

Dr. O. S. Gilliland mentioned that a large number of headaches are allergic reactions either to bacteria or food.

Dr. Laverne B. Spake said headache in children is a very uncommon symptom, especially under the age of 10 years. In a recent survey of over 50 cases of sinusitis in children, only one gave headache as a symptom.

Dr. J. H. Laning mentioned that frontal sinus vacuum headaches come on after arising and leave later in the day. Some cases may last nearly all day. Cocain and pituitrin applied in the nose usually relieve these cases immediately. They may remain well for the rest of the day. The use of the eyes usually makes these cases worse. Some of them are permanently relieved by submucous resection, others require anterior turbinectomy.

Dr. Sam E. Roberts emphasized the importance of a complete history, the patient's own story at the initial examination. Morning headaches are usually sinus headaches; afternoon and evening headaches are more often ocular in origin. Sinus headaches are aggravated by constipation and during the menstrual period. They are also aggravated by indiscretions in diet and alcoholic liquors. Malnutrition and endocrine disturbance are also factors that cannot be overlooked. He could not agree with our internist guest that over 50% of headaches are of neurotic origin. To term a patient neurotic is often a mask for our ignorance.

Dr. J. W. Kimberlin emphasized the importance of a definite history of the time of the onset of headaches, their location, their duration and their relation to the various daily activities. Usually those dating back but a week or two are not from the eyes. A headache that starts on first awaking and leaves in an hour or so is probably from the sinuses. The opthalmologist should try to avoid putting his patients to the expense of time incident to a refraction when the history points to some other more probable cause of the trouble.

Albert N. Lemoine,
Recorder.

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## THE BALTIMORE MEDICAL SOCIETY AND THE WASHINGTON MEDICAL SOCIETY.

### Sections of Ophthalmology.

Joint Meeting in Baltimore.

January 27, 1927.

William H. Wilmer, M.D., Chairman.
William T. Davis, M.D., Chairman.

**Modified Trephine Operation.**

Dr. Wm. H. Wilmer presented a case of chronic glaucoma in which a new modification of the trephine operation had been performed. In the right eye,

which was the patient's better eye, the ordinary trephine operation had been done. In the left eye after the trephine hole had been cut out and iridectomy performed, a piece of Tenon's capsule was excised from the edges of the conjunctival wound and was tucked in between the split corneal lamella covering the trephine hole. The conjunctival flap was then replaced in the usual way. The aim of this modification was to secure a thicker conjunctival flap so as to lessen the danger of late infection. At the present time, two weeks after the operation, both eyes are free from irritation. The tension is subnormal in each eye and is least in the eye in which the modified operation was performed.

**Comparison of Lagrange and Trephine Operations.**

DR. JOHN W. BURKE first outlined the special precautions which he thought most desirable in each of these operations. In the trephine operation he felt that the conjunctival incision should be straight rather than curved, for with the straight incision the flap can usually be replaced without the aid of sutures. A complete iridectomy rather than a button hole iridectomy is desirable for this minimizes the danger and the untoward effects of quiet iritis. In the Lagrange operation fixation of the eyeball is most important. For this he has had a special fixation forceps prepared with long, sharp teeth with which a hold on the sclera can be obtained. The blade of the knife should enter the anterior chamber with its point directed towards the pupil rather than held horizontally as in making the section for cataract operations. If this is done, a small section can be made which, he says, should not be more than one-seventh of the circumference of the cornea. A very small sharp toothed forceps is necessary to grasp the scleral flap. A wide complete iridectomy should be performed. Dr. Burke felt that the reduction of tension was at least equally good with either operation, and turned attention, therefore, especially to the complications. Late infections are more common after trephine operations as is also quiet iritis. Injury to the lens also appears to be more common after trephine operation. On the other hand, injury to the ciliary body and loss of vitreous is a more frequent complication of the Lagrange. On the whole Dr. Burke prefers the Lagrange operation which he now performs on all cases of chronic and subacute glaucoma, excepting only cases of buphthalmus and cases in which the anterior chamber is extremely shallow.

**Vascular Lesions of the Fundus Oculi.**

DR. W. T. DAVIS first drew attention to the persistent and obstinate asthenopia which is occasionally met with in early retinal arteriosclerosis. He then reviewed the anatomy of the retinal vascular system as given by Salzmann and the pathology of the vascular changes as given by Fuchs, Parsons and others. The ophthalmoscopic changes in chronic nephritis are due to vascular diseases and toxic effects rather than to the loss of kidney function and this explains the occasional cases presenting the picture of albuminuric retinitis without renal insufficiency. The earliest changes in these cases are small white dots about the disc and in the region of the macula, haziness and delicate hyperemia of the disc, isolated milky areas in the retina, and beaded appearances of some of the larger vessels. Spasm of the retinal vessels is probably an arteriosclerotic manifestation. Arteriovenous compression produces secondary changes in the veins and may ultimately lead to venous thrombosis. Retinitis proliferans occurs most commonly after hemorrhages in the neighborhood of the disc. In the later stages of syphilitic retinitis the changes are mostly in the walls of the vessels, sometimes so great as to close the lumen. Diabetic retinitis is apparently based on vascular changes as is also gouty retinitis. Cases of retinal periphlebitis are generally of tuberculous origin. The speaker then enumerated the various causes which lead to retinal and vitreous hemorrhages including those due to infectious diseases, diseases of the blood, and toxemias. Aneurisms of the retinal arteries are rarely seen, the most frequent forms being miliary aneurisms in elderly people.

JONAS S. FRIEDENWALD,
Secretary.

JAMES N. GREEAR,
Secretary.

## COLLEGE OF PHYSICIANS OF PHILADELPHIA.

### Section on Ophthalmology.

DECEMBER 16, 1926.

DR. EDWARD A. SHUMWAY, Chairman.

### Further Report on a Case of Primary Sarcoma of the Iris.

DR. ZENTMAYER presented the microscopic specimen in the case of tumor of the iris shown at the November meeting. The growth had been removed by iridectomy. A keratome was introduced at a sufficient distance from the position of the growth so as to get as large a limbal incision as possible without the knife coming in contact with the growth. The wound was then enlarged with the scissors. The iris was seized between the base of the growth and the ciliary attachment and withdrawn from the anterior chamber. A minute fragment of the tumor was scraped off and was seen resting on the posterior surface of the cornea near the wound. Free bleeding prevented attempt at removal. Forty-eight hours later, the eye being quiet and the anterior chamber restored, the wound was reopened with the iris repositor and the fragment removed with the lens spoon.

The eye has remained perfectly quiet and the boy is receiving roentgen ray treatment from Dr. Pfahler.

### Embolism of Branch of the Central Artery of the Retina.

DR. GEORGE H. CROSS presented Miss M. W., white, single, aged 20, who first consulted him about two weeks previously because of inability to see objects below a central horizontal line with the right eye. This condition was first noticed following what she termed "a bad spell with her heart" about one month previously. Her past medical history shows that she had influenza in 1919, scarlet fever five years ago, and numerous spells with her heart.

Ophthalmoscopic examination: Media clear; about one-half disc diameter from the upper temporal aspect of the disc the superior temporal artery seemed to stop suddenly; beyond this there was a very thin, thread like stream of blood in the center of the artery, the walls of which seemed to maintain their original diameter. This fine stream and the vessel walls were lost in a large area of "ischemic necrosis" irregular in outline, about the size of the disc. Beyond this the vessels emerged as a broken column (streaming) for a short distance, then as a vessel of full size. Just before the embolism was reached in following the course of the artery from the disc, from a small branch artery there was observed a fan shaped group of vessels (arteries of new formation) which extended into the ischemic area. The greenish color in the center of the ischemic, necrotic area, was diagnostic of an infective embolus from a heart valve leaflet. The visual field chart shows complete obliteration of the lower field from a line just below the horizontal and extending downward.

*Discussion.* DR. WM. ZENTMAYER said that from the statement of Dr. Cross that the opacity in the retina at first had a greenish cast, with the fact that there is localized visibility of the walls of the vessels at the position of the obstruction, it occurred to him that the embolism may have been of a mild septic nature.

### Disciform Keratitis.

DR. BURTON CHANCE and DR. LOUIS LEHRFELD (by invitation) presented from the clinic at Wills Hospital, a case of this disease in the right eye of a robust girl, who had been under observation since late in September. The first symptoms complained of were those of mild inflammation, redness and slight pain for the previous six months. The flow of tears was out of all proportion to the amount of the other symptoms.

When examined, there were supracorneal injection and a whitish disc at the summit of the cornea, slightly obscuring the pupil. The disc extended to within 3 mm. of the limbus, the intervening circle being quite clear.

The corneal disc itself was defined by an outer, dense white circle of infiltration, and an inner plaque, connected with each other by fine radiations across the translucent intervening space. This anomaly was situated beneath the epithelium, and continued

with no visible signs of vascular communications with the limbus until the last week in November, when the slit lamp microscope revealed tiny blood vessels at the lower extremity of the vertical meridian and the outer of the horizontal.

Dionin and holocain, each in 1% solution, were used. The inflammatory signs gradually disappeared and the eye became quiet, only a shallow whitish ring of about 4 mm. in diameter persisting. The plaque became less dense and the ring appeared whiter. Later on, the outlines became less distinct and irregular, and, as now seen, the infiltration is fading.

No cause for the disease could be ascertained; the blood reactions were negative.

The case was presented because of the tender age of the patient, besides being of sufficient rarity to merit exhibition.

**Crutch Spectacles.**

DR. THOMAS B. HOLLOWAY exhibited a young girl who came to the University Hospital on account of a complete ptosis of the right lid. Upon examination, a complete superior rectus palsy also was found. The eye was amblyopic. No fundus lesions were present. An operation for the ptosis was especially desired but, with the lid elevated, only 1.5 mm. of the upper portion of the cornea could be seen owing to an associated spasm of the inferior rectus.

It was decided to do an advancement of the superior rectus as an initial step and, considering the marked amblyopia, a tenotomy of the inferior rectus. An astonishingly good result was obtained, altho, as would be expected, not absolute parallelism. Before deciding definitely upon the ptosis operation, it was thought that the crutch spectacle, as advocated by Mackay, would be of service in determining the amount of annoyance that might result from diplopia with the lid elevated.

An excellent piece of mechanical work was done by the optician, and the cosmetic result with the glasses properly adjusted is unusually good. They have been worn with but little or no discomfort or ocular irritation. The cosmetic result is really so good that one would hesitate at this time to attempt to compete with it by operative procedures.

*Discussion.* DR. LUTHER C. PETER stated that in addition to the brilliant surgical results which Dr. Holloway obtained in his interesting case, he desired to call the attention of the members to a phase of diplopia which is well illustrated by this patient. Diplopia following a paralytic squint in the young is apt to disappear. Young individuals learn rather readily how to suppress the false image, whereas diplopia in adults is apt to continue as an annoying symptom for long periods, sometimes thruout life.

A patient whom he had been observing during the past year, a lad of fifteen, who had suffered a paralysis of the left superior rectus and left inferior rectus as the result of a fist blow, was a good example of the same phenomenon. Altho diplopia was marked at first, the boy is not annoyed in the least by double vision, and is even able to catch behind the plate in baseball without a mask—a good test of the absence of diplopia.

**Chorioretinitis Juxtapapillaris.**

DR. FRANCIS HEED ADLER called attention to the fact that in all of the cases reported by Jensen in 1908, the lesion could be observed ophthalmoscopically at the edge of the disc, and the visual field defect was always a sector-shaped, absolute scotoma extending from the blind spot to the extreme periphery.

Numerous cases have been reported under the heading "retinochoroiditis juxtapapillaris, Edmund Jensen type," but by no means do all of the cases thus reported show the exact ophthalmoscopic picture described by Jensen, nor do the fields faithfully reproduce the defect which he described as typical.

Hepburn, Roenne, and Friedenwald have all questioned the advisability of regarding this as a separate clinical entity apart from other forms of acute, circumscribed, exudative chorioretinitis.

A statistical review of the cases reported in the literature shows that these cases do not differ in etiology or

in prognosis from other types of retinochoroiditis. One feature alone, however, suggests a difference in development of this type of chorioretinitis, namely the field defect.

As pointed out by Peterson, the field defect suggests that the nerve fibers are involved, and Van der Hoeve has proposed the term neurofibrillitis because of this defect. In this respect the disease differs from other types of chorioretinitis in which the field defect suggests involvement of the deeper layers of the retina.

*Discussion.* DR. WM. ZENTMAYER asked how many of the cases of typical Jensen's type of choroiditis in the literature had precipitates on the posterior surface of the cornea and membranous opacities in the vitreous. It would have been of further interest had Dr. Adler given us something of the clinical history and laboratory results of the case. Igersheimer has also reported a case, in which the patient had syphilis.

DR. LUTHER C. PETER said that it is difficult to determine, from the field alone, whether this disease is primarily a disease of the choroid or retina. It is quite evident, however, that the retinal nerve fibers are caught up and evidently disturbed by the lesion in this interesting type of chorioretinal disturbance. The lesion in the right eye, in the case which Dr. Adler presented, is up and to the temporal side, and, as one would expect, the field disturbance is down and to the nasal side, involving the fibers which are distributed to the superior temporal retina.

Jensen's disease undoubtedly differs from ordinary types of choroiditis in that, as Dr. Adler has pointed out, the sector from the disc to the periphery is involved; whereas in patches of choroiditis, field pathology usually is limited to the area of choroidal involvement. A patient under his care, suffering from a patch of chorioretinal disturbance down and in from the disc, but not immediately adjoining the disc, showed the same field disturbance extending from the disc to the periphery.

**A Simplified Conception of Visual Field Changes in Chronic Glaucoma.**

DR. LUTHER C. PETER called attention to the fact that, in accounting for the various field changes found in chronic glaucoma, three phases have not been analyzed to the same extent as those which are known under special names, such as Seidel's sign, Bjerrum scotoma, Roenne's step, and Elliot's sign. These special signs can be regarded as a Bjerrum scotoma, or one of its modifications.

The behavior of color response is peculiar to glaucoma, color suffering *pari passu* with form in the areas supplied by definite nerve bundles which are undergoing atrophy. Failure of green sensitivity is the earliest evidence of a beginning Bjerrum scotoma.

Moderate peripheral contraction is due to a stretching process of the long peripheral nerve fibers which, according to Fuchs, occupy the central area of the nervehead. In the peripheral contraction, disturbance of the choroidal nutrition probably contributes little, if any, permanent defect. Disturbed retinal nutrition plays a larger role than that of choroidal disturbances, but the chief factor is the stretching process.

The occasional loss of a temporal quadrant or sector as the first evidence of field cutting is likewise due to the same stretching process.

An analysis of all these changes reveals the same pathologic process at work, namely, a stretching or compression of nerve fiber bundles. The area in the field in which the defect first appears is determined by the anatomic relation of the nervehead to the scleral ring, the area in the cribriform membrane, or supporting structure of the nerve fibers, which first yields to increased intraocular tension.

The field defect which is now regarded as characteristic of glaucoma is the Bjerrum scotoma. Other signs added from time to time are but modifications of this sign. All defects thus far observed in chronic glaucoma can be accounted for by the same process. As Elliot states: "The great underlying factor in chronic glaucoma is an interference with the nerve bundles, either on the disc or as they emerge from it. Other factors are only contributory." It will reduce our conception of field pathology, therefore, to greater sim-

plicity if the Bjerrum scotoma alone, in one of its various forms, be regarded as the characteristic defect. All forms of field pathology observed in glaucoma can be traced in their development to the sector type of atrophy, which is expressed in a Bjerrum scotoma.

**Subconjunctival Cataract Extraction.**

DR. FREDERICK KRAUSS described such an operation for senile cataract.

The incision with the von Graefe knife after completing the sclerocorneal section is extended under the conjunctiva to near the fornix. The conjuncitval flap is made loose, so that the lens may escape under it when the lens is removed either by expression or by the hook. The advantages are greater safety, simplicity, quick healing, freedom from the necessity of absolute rest on the back, no need of bandaging both eyes and a general increase in comfort on the part of both operator and patient.

*Discussion.* DR. WM. ZENTMAYER said that he supposed that where this technic was employed if one desired to do a preliminary iridectomy the incision had better be made in the cornea, as we are all familiar with the difficulty of getting an ordinary conjunctival flap where a preliminary iridectomy has been made, because of the cicatrization at the seat of the scar.

**Exhibition of a Portable, Illuminated Test Card.**

DR. J MILTON GRISCOM exhibited a portable test card outfit which was designed for use in bedside or home refraction. The apparatus consisted of a stand with folding supports and a jointed upright, a crossbar below to which a shaded electric light could be attached, and a second bar above to which a folding black screen was fastened and in front of which a folding test card was hung. A perforated metal cap was provided to place over the light used for illumination, which converted it into a spot light for muscle testing. The entire outnt could be detached, folded up and carried in a small bag.

LEIGHTON F. APPLEMAN,
Clerk.

## PUGET SOUND ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY.

FEBRUARY 15, 1927.

DR. HARRY VANDERBILT WÜRDEMANN, President.

**Dacryocystitis.**

DR. J. EDWARD CLARKE presented a patient, white, male, aged 70, who was first seen by him five years ago with epiphora on the right side and a chronic suppurative dacryocystitis on the left. He performed West's operation on the left side and got immediate, complete relief. The nasal opening showed so well the tears draining, that the patient was brought before the Academy to be exhibited. One year after this operation, unable to obtain relief for epiphora on the other side, the same operation was done. After some treatments with large probes and the cauterizing of graulations with silver nitrate, complete relief was obtained. The patient has had no recurrence up to the present time.

*Discussion.* DR. C. W. SHANNON said the results in this case seemed excellent. He preferred the Mosher instead of the West, that is, he exposed the sac thru a small external incision, removed the posterior wall of the sac, opened into the nose opposite and removed considerable area of bone. At the same time he removed the anterior tip of the middle turbinate and opened the ethmoid cells around the opening. He has obtained very good results with this operative procedure.

DR. B. E. WASHBURN did not see the West operation performed in any of the countries he visited recently in Asia, all operators preferring extirpation of the sac. The operation was performed in Austria but a contraindication given to the procedure was stricture of the canaliculus.

**Iridocyclitis.**

DR. J. EDWARD CLARKE presented a man, white, aged 26, who was first seen Feb. 2, 1927, at which time he complained of poor vision in the right eye for two days. The eye was and has been perfectly quiet externally thruout its course. The findings are

those typical of chronic iridocyclitis, probably tuberculous, with a heavy deposit of "mutton fat" droplets, triangular in arrangement on Descemet's membrane; complete adhesion to lens of semidilated iris. These adhesions broke up easily leaving a perfect ring of pigment on the lens. The blood Wassermann was negative. Teeth were normal. The tonsils were infected so their removal was advised.

*Discussion.* Dr. Walter Hoffman said Dr. Clarke's case appeared to him to be probably tuberculous. His experience with tuberculin in these cases has been very favorable. He remembers a woman about fifty-six years old who came to his office for refraction, complaining of lowered vision. He found that her vision was 20/60. There were many deposits on Descemet's membrane. After a very few doses of tuberculin her vision improved to 20/15, where it remained. He had always been undecided whether the benefit following the use of tuberculin in these cases was due to the reaction of the foreign protein or to some specific action of the bacterial vaccine and has wished that he could run some parallel cases, part with tuberculin and part with simple foreign protein.

**Extensive Choroiditis.**

Dr. Thomas Dowling presented a 46 year old man who was a native of Indiana, married, a machinist by occupation. He complained of trouble with his vision. Five years ago a small spot appeared before the left eye. This rapidly became larger and other spots appeared. In about two months he had what was diagnosed as iritis of this eye. This lasted about six weeks. At that time his teeth were examined and some of them were extracted. His tonsils were removed and some sort of operation was done on his nose which he thinks was the removal of a piece of the bone. This eye did not improve much. About three years ago the right eye became affected. The onset of this trouble was acute, coming on suddenly while at work. One day, two months after this eye became involved, he had an attack of iritis in his right eye which lasted for three months and was much more severe than the former attack which he had in his left eye. He declared that as far as he knew, all of his blood tests had been negative and that his urine had been normal. His general health had always been good. There was no history of any severe illnesses, except whooping cough when he was about 18 years old. He had had no residence in any foreign country. He had no headaches. He was always constipated. He looked fairly healthy. His weight was about normal for him, 154 pounds. Examination of eyes: Pupils reacted to light and accommodation. His vision for distance was, right eye 20/65; left eye 20/50; but he said that everything looked hazy. The media of the eye were clear. With the ophthalmoscope the retina of both eyes showed a very extensive choroiditis; many patches being old and atrophic in character and some few active spots being present in the right eye.

*Discussion.* Dr. L. L. McCoy said this case reminded him of a recent patient of his who came with the complaint of blurred vision and specks before the eyes. There were some old and some recent choroidal changes in each fundus. His teeth seemed in poor condition and a roentgen ray of them was advised. A papular eruption over the nose was suggestive of beginning lupus. The blood Wassermann was negative, the roentgen ray was negative as to apical infection. Rhinologic examination showed polyps in right nostril and cloudiness of right antrum. This antrum was drained and a large amount of foul smelling pus was removed. The antrum healed after about two months and his eyes and face were in very much better condition. His vision, also had improved somewhat and he was given glasses.

W. O. Bell, Secretary.

## COLOR PLATES.

Color Plate 2, at the beginning of this issue, belongs with the paper of Dr. H. H. Tyson on "Crater Like Cavities in Optic Disc." When bound it should be placed facing page 239, of the April issue.

# American Journal of Ophthalmology

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## ASSUMPTIVE DIAGNOSES.

A common defect in diagnostic technic is to assume, on finding a lesion or defect which seems to account for the symptoms, that this is the real cause of the trouble. For instance, a patient smelling of tobacco, or alcohol, or both, may come in with failing sight and a central scotoma, naturally arousing a suspicion of toxic amblyopia. The real trouble may, however, be a slight lesion at the center of the retina, impossible to see except with a dilated pupil, and hard to see even after dilatation. The prepossession, caused by the first impression, may lead the oculist to dispense with the care necessary to detect the lesion; and cause him to prescribe an unnecessary and most unwelcome period of abstinence.

This form of error is not so apt to do harm as the reverse, in which a patient with toxic amblyopia, or retrobulbar neuritis from some other curable cause, is found to have one of those forms of degeneration of the choroidal lamina vitrea, which may, for years, lie so far outside the rods and cones as to cause little or no disturbance of function.

Until he has learned by experience how gross such lesions may appear to be, with a minimal loss of sight, the oculist may easily center his efforts on the incurable fundus lesion and neglect the essential factor in the diagnosis and treatment. One of the most common mistakes of assumptive diagnosis, is to accept the presence of lens opacities as the cause of a visual defect, due mostly or mainly to chronic glaucoma. Such opacities may seem to account fully for the poor sight; and they may obscure the fundus so that unless the fields and tension are taken carefully, the diagnosis may be wrong and its results disastrous.

The prognosis of a cataract operation may easily be falsified by lack of care in looking for retinal defects; at a time when they can, with a dilated pupil, be seen in spite of the opacities, if the observer will use more than ordinary care and patience. Macular degeneration or even small detachments may be overlooked; the patient is told that his chances of getting ability to read again are first-class; the operation is a complete success, as an operation. But the patient gets no reading vision; or worse yet may get very little practical sight, because in the interim a detachment has gotten much worse; or has even been made worse by the operation; a misfortune which the writer believes has happened several times in his own practice.

The form of retinal detachment caused by an intraocular tumor is, in the early stage, generally characteristic enough to at once arouse suspicion; not so, however, in the later stages of such tumors. Many a tumor has been neglected because of the easily diagnosed detachment; and this mistake will continue to be made unless every oculist *always* gives the possibility of an underlying tumor careful consideration, in all cases of detachment. *Always* also, think of tumor in the case of a blind glaucomatous eye, when cataract or other conditions prevent a view of the interior. Such eyes, unless they are painful, are often left until the patient dies of sarcoma of the liver, and the original tumor may not be discovered even then. Or if such an eye be painful, a fistulising operation is sometimes done to relieve the pain, instead of the necessary enucleation. In one-sided cataract in young people, it is well to ask about old traumas as a possible cause; having in mind, in giving the prognosis of the operation, the chance that a rupture of the choroid or some other internal lesion beside the cataract may be present.

This, of course, is old stuff. But, in view of the number of mistakes which still are being made, it seems worth while to repeat a few instances of the way in which the discovery of one lesion may serve, as a red herring, to divert the observer's attention from the true trail.

H. GIFFORD.

## THE FIELD OF OPHTHALMOLOGY.

We believe ophthalmology is an important and indispensable part of medicine. Most of us chose this field because we liked it best, nevertheless, we often fail to champion it as wholeheartedly as we might, especially to our associates in teaching and to our students. The long and costly preliminary training, the memory of the early months without reward, the minor position on the hospital staffs, and the comparatively poor financial return lead us to fall short of urging the medical student to follow in our footsteps. But we do want to see ophthalmology retain its respected position and for this we need to increase constantly the number of able young men entering the ranks.

To counterbalance the long preliminary road there is the pleasant character of the work, in which quick results follow good service. In what branch of medicine is there more variety of detail, or in what one do more interesting research problems appear? Here the art of medicine approaches a science, so exact can be the diagnosis and the treatment. The literature is marvelously complete and accessible. Then too, it is a specialty that can be carried in many cases far into age, because the physical strains are not tremendous. The practice is mostly in one place and the hours are reasonably short, and there are few night calls. There is always chance for mental growth and each of us can truly say "Grow old along with me, the best is yet to be."

An insufficient percent of graduates of the class "A" schools are becoming ophthalmologists. The attractiveness of the field is not presented to them. The ophthalmologist is apt to permit himself to drift away from the general teaching staff; and his department in consequence is regarded as somewhat apart from the practice of medicine. Instructors in ophthalmology should attend the general meetings, not only as a friendly gesture, but frequently as a valuable contributor to the discussion of a case in which, as so often, the eye condition is a determining factor in the diagnosis. He will also find that he will receive as much as he will give. Keep in touch with the ocular condition of patients in the general hospital, and with the internist and surgeon. Interest in all the hospital activities and not alone in eye cases, will keep the ophthalmologist an active member of the staff and his specialty will not seem so isolated.

An endeavor should be made to interest the surgical or medical interne in the eye cases on his ward and in the associated eye lesions of his other pa-

tients. The perfecting of a unified and efficient ophthalmologic staff strengthens the specialty in the school. All these things affect both the instructors and the students. The opinions of the latter are largely influenced by the attitude of the former; so if the former respect ophthalmology and think it a desirable field, that also will be the reaction of the student. Most important of all is it that the layman for his own good should think highly of the ophthalmic profession; and from whom does the layman get his ideas of medicine but from the family physician, and the student of today is the family physician of tomorrow.

L. T. P.

## EYE SYMPTOMS OF VENOUS INFECTIONS.

A young man with acute inflammation of the middle ear, under treatment for several weeks by the best oto-ophthalmologists in two cities, died of brain abscess, without having been examined with an ophthalmoscope, or having his visual fields taken.

Venous thrombosis is nearly always due to infection of the wall of the vein. The possibility of such an infection should be borne in mind and its effects looked for. Leucocytosis in the blood stream and ophthalmic symptoms, especially papilledema, are the definite evidences of such infection that declare the basic pathologic condition to be dealt with.

Failure to look for the only signs that can be relied upon with confidence has been the reason for many failures to make a diagnosis. The cases that have been thrust upon the attention of the ophthalmologist by exophthalmos, diplopia, or diminished vision, constiture only a minority of the infections of the venous sinuses within the cranium. Only a routine search for facts that are discovered by special tests and examinations, brings to the patient the resources of modern medicine.

The book of Eagleton, recently noticed (v. 9, p. 913), emphasizes the large number of infections of the cranial venous sinuses, that are not forced on the attention of the ophthalmologist by exophthalmos and impaired sight. The sudden swelling of the tistues of the lids and orbit points to anterior infection of the cavernous sinus, as from injury, or suppuration of the nose, face, or about the teeth, orbits or nasal sinuses. A larger number of such infections are not proclaimed by sudden or complete venous obstruction, and have heretofore escaped notice, or any special investigation.

There are portions of the intracranial venous channels that may be infected without causing eye symptoms, or only cause them thru involvement of the cavernous sinus. But there are also venous channels, as those of the orbit, lids, nose and other parts of the face, that may cause ocular disturbances without involvement of the cavernous sinus. The important points to be understood and appreciated with regard to venous infections are that they have the same essential pathology in different parts; and, when established at one point in the venous system, are likely to extend to other parts of it.

Apart from the relatively few cases of "marasmic thrombosis," the important fact about all such lesions is that they are of bacterial origin, and must be combatted by the measures that are effective against infections. Vaccine and serum treatments must be tried, in the effort to improve the prognosis that has heretofore been unfavorable. Local drainage, which is very effective for a single local lesion, is less reliable when the infection causing a thrombophlebitis has come to the walls of the veins thru the blood stream. This applies whether the infection is in the cavernous sinus, or in the veins of the orbit. The exact diagnosis as to the locality of the thrombosis is less important than the knowledge of its cause. Special examination may give certainty as to the presence of such a lesion, and may show its location and progress toward death or recovery; but treatment must deal rather with the general cause, affecting also other parts of the body.

In any case diagnosis must precede treatment, and where the case is obscure every diagnostic resource should be utilized. This is only possible if the diseased condition is borne in mind; and looked for in cases that remain obscure until the appropriate method of examination is resorted to. These special examinations may yield nothing in many cases. But they are worth trying in all, because of the positive information and certainty they alone can give in a few important diseases.

E. J.

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## BOOK NOTICES.

**Transactions of the American Ophthalmological Society.** Sixty-second Annual Meeting, 1926. Cloth, 8vo, 397 pages, 28 plates, one in colors, and 57 other illustrations. Philadelphia, published by the Society.

Perhaps the most striking thing about this volume is the page headed "In Memoriam" and bearing the following names, arranged in the order in which they became members of the Society: Thomas R. Pooley, 1869; C. S. Merrill, 1874; Walter B. Johnson, 1892; Alexander Duane, 1902; S. Lewis Ziegler, 1903; Lee M. Francis, 1913; Marcus Feingold, 1920. It must be remembered that William M. Sweet, for several years the active member of the Publication Committee, has ended his labors since the completion of this volume. Six of the plates reproduce fine photographic portraits of the deceased members. These with the accompanying sketches of their lives and characters, give this volume positive historic interest.

The Transactions include 26 papers that were presented at the annual meeting, with the discussions elicited; and three communications that were accepted as theses, from candidates for membership in the Society. The bulk of these papers and the discussions, are concerned with clinical studies and reports of cases. There are also special studies of convergence fatigue, the light sense in early glaucoma, and the evaluation of visual efficiency.

There is one paper by Dr. Lancaster of Boston, and its discussion, that are out of the usual lines of scientific proceedings; a sort of stock taking of the present effectiveness of the common methods for ophthalmic education. It is based on "An analysis of the marks obtained in the different subjects, by the candidates for the certificate of the American Board for Ophthalmic Examinations." This analysis shows that of the four major subjects, pathology had the largest number of failures and of very low marks, next comes external diseases of the eye, then ophthalmoscopy, while refraction showed the smallest number of failures. A striking fact, confirmed by several in discussion, was the improvement in qualifications that has been going on thru the ten years these examinations have been held. Beside the four major branches, mentioned above, the figures are given on the four other branches in which practical examinations are given. These are the ocular muscles, perimetry, relation of ophthalmic to general diseases and therapeutics. These examinations are raising the standards of fitness for ophthalmic practice; and to have the mass of ophthalmologists know more about them will help.

The three membership theses are upon subjects of scientific and practical importance: Congenital Aniridia, Metastatic Carcinoma of the Choroid and of the Iris; and Luetic Interstitial Keratitis of Traumatic Origin. Each of these has a bibliography appended, thru which the student is given a broad grasp of the literature that will help to a good understanding of the subjects. As an Appendix to the volume, the Report of the Committee on Compensation for Eye Injuries is reprinted from the Proceedings of the House of Delegates of the American Medical Association. The index to the volume makes it a practical book of reference.

E. J.

**American Academy of Ophthalmology and Oto-Laryngology, Transactions for 1926.** Clarence Loeb, Editor. Cloth, 8vo, 569 pages, 23 plates and 79 illustrations in the text. Chicago, Published by the Academy, 1926.

The communications in this volume relating to ophthalmology number 22, and those regarding oto-laryngology 18. Some of these papers are of interest to both the oto-laryngologist and the ophthalmologist. A symposium on tuberculosis was quite appropriate to a meeting held at Colorado Springs. Dr. Gerald B. Webb, of that place, spoke on Anomalous Forms of Tuberculosis. Dr. William C. Finnoff took up the Use of Tuberculin in Ocular Tuberculosis, and Dr. Frank R. Spencer Tuberculosis of the Middle Ear and Mastoid. The discussion that followed these papers was joined in by six other speakers. The paper on Periodic Health Examinations, by Dr. E. H. Cary, brought out a discussion in which eight speakers took part.

At this meeting the guest of honor was Mr. Basil Graves, of London, who took for his subject The Surgery of Senile Cataract. His paper illustrates how biomicroscopy, besides bringing out important facts in connection with the healing of an eye after cataract extraction, furnishes a method of study of such cases and brings a new point of view from which to judge the value of various steps in the operation for a cataract extraction. The more exact knowledge of all that happens, after the eye has been subjected to such serious surgical interference, will certainly help us to estimate more justly the important variations that are suggested for the operation of cataract extraction.

Other important papers in this volume, not published in this Journal, are upon Diagnosis and Treatment of Vertical Deviations of the Eyes, by R. O'Connor. A Study in Nutrition of the Lens, the Cultivation of Lens Epithelium, by Daniel B. Kirby, Research Fellow for the Academy. The Oculo-Cardiac Reflex by Harry S. Gradle, is also a record of original investigations. These make, with other papers mentioned in Current Literature, an extremely creditable showing for the Scientific work being done by Fellows of the Academy and intelligently discussed at its meetings. E. J.

**Lecciones de Oftalmologia Clinica. Dr. Manuel Marquez,** Professor of Ophthalmology of the Faculty of Medicine of Madrid. Paper, octavo, 316 pages, 1 colored plate, 208 illustrations in text. Madrid, Julio Cosano, 1927.

This book brings together, from the general field of clinical ophthalmology, subjects that are of interest to all students of ophthalmology. It presents them from the practical side, clearly and without unnecessary use of words. Its arrangement and scope are shown by the headings of the chapters and lectures.

The first chapter, on General Ideas Concerning Ophthalmology, includes two lectures; the first, entitled "Ophthalmology as a Medical Specialty," contains an outline history of ophthalmology in the form of biographic notes of ophthalmologists from Dazo de Valdes, who wrote on the use of spectacles in 1625, to José A. Barraquer, illustrated by portraits of 18 of the most famous. Lecture 2, on the "Fundamentals of Ophthalmology" takes up the "Structure and Functions of the Visual Apparatus," in which the colored plate illustrates the nerve tracts concerned with vision, and the embryology is described.

Chapter 2 is on the "External Examination of the Visual Apparatus" and parts adjoining the eye, the ocular tension and brilliancy and color of the eyes. Chapter 3 is given to the objective symptoms and asthenopia. Chapter 4 includes the functional examination of the eyes, the form, light and color sense, and the visual field. Chapter 5 takes up optics, physical, physiologic and anomalous. These chapters are illustrated with many pictures of clinical cases and forms of apparatus. The explanation of the different points in optics is made largely by geometric figures, which are more easily under-

stood and more instructive for most readers, than are algebraic equations.

In all respects, for one who can read Spanish, this is an excellent text-book with which to begin the special study of ophthalmology. E. J.

**Epidemische Mangelhemeralopie (Avitaminosen). Dr. Th. Birnbacher.** Vienna. Paper, octavo, 64 pages, 8 illustrations. Price 3.50 Marks. Berlin, S. Karger, 1927.

Acute, essential hemeralopia, from impairment of nutrition by starvation or exhausting disease, has been known from the time of Hippocrates. Following the World War the undernourished condition of large populations in Europe led to such epidemics in Europe. The study reported in this monograph was made at the Eye Clinic I in Vienna under Prof. Meller, during the years 1919 to 1924 inclusive. It included 330 cases, the largest number of which occurred in the early months of the year, reaching a maximum in May. The illustrations are graphs illustrating the prevalence of the disease and the type and course of individual cases.

Beginning with an historical sketch of our earlier knowledge of the disease, the material and methods of investigation on which this account is based are described. The case history is often the sufficient basis for the diagnosis, but the changes in dark adaptation, sensibility to blue and field of vision are all important features. Visual acuity, refractive conditions, state of pupil and accommodation, the presence of epithelial xerosis of the conjunctiva, the duration of the night blindness, treatment and recurrences are all considered.

Half of this brochure is given to etiology, the prominent conditions being lack of vitamin A in the diet, time of year, age and sex of patients. The earlier literature is extensively drawn upon and over three pages are devoted to the bibliography. The work is one that should be studied by any one who attempts to write upon this form of nyctalopia, or either of the conditions that are associated with it.

E. J.

**Handbook of the Promotion of the Welfare of the Blind. Carl Strehl.** 306 pages. Published by Julius Springer, Berlin. 24 Marks.

This book is a comprehensive survey of the activities interested in the welfare of the blind of Germany. It is largely historical and statistical, and the different chapters are discussed by experts on the individual subjects, physician, teacher, lawyer, etc. There is a detailed table of contents and an index of the more important items.

The authors and their subjects are: Bielschowsky, The Visual Organ and Diseases Causing Blindness, 10 pages; Schwartz, The Schools for the Blind, 22 pages; Grasemann, The Education of the Blind, 14 pages; Kuhn, Institutions, Workshops and Homes for the Blind, 13 pages; Strehl, Library, etc., in Marburg, 8 pages; Niepel, Care of the Visually Defective, 2 pages; Heimers, Apparatus for Instruction of Blind, 10 pages; Schulz, Congresses of Teachers of the Blind (contains the names of papers read before various meetings 1873-1924), 24 pages.

Schulz, The Blind in the Higher Class Occupations, 9 pages; Reuss, The Blind as Authors, 4 pages; Oppermann, Blind Musicians and Artists, 6 pages; Peyer, Medium Class Occupation, 5 pages; Anspach, Industrial Occupations for the Blind, 25 pages; Perls, The Blind in Industries, 6 pages; Clostermeyer, Occupations for Blind Women, 10 pages; Kraemer, The Jurisprudence of the Blind, 16 pages; Strehl, Care for the Blind and its Latest Development, 20 pages; Claessens, Care for the War Blinded, 16 pages; Bischoff, Association of War Blinded, 1 page; Gabler-Knibbe, The Imperial German Association of the Blind, 4 pages; Strehl, Society of Blind University Students, 1 page.

Schwerdtfeger, Society of German Speaking Blind, 2 pages; Scheid, Society of the Blind Women of Germany, 3 pages; Vanoli, Industrial Associations of the Blind, 2 pages; Scheid, Recreation for the Blind, 9 pages; Trzeciakowski, Literature of the Blind, 7 pages; Dreyer, Libraries and Publishers for the Blind, 13 pages; Güter-

bock, Publications for the Blind in Germany, 19 pages; Kreitz, Esperanto Among the German Blind, 1 page; Reusch, Society for Christian Life Among the German Blind, 1 page. This is followed by 20 pages of addresses of schools, libraries, societies, etc., for the blind.

This book is of more value to those who deal with the "social service" side of blindness, than to those who are mainly interested in its therapeutic side. But when our best efforts have failed it is good to know that in other lands as well as in our own, there are workers who are developing means for ameliorating the condition of the blind, and for making them useful members of society. C. L.

**Bulletin du premier Congres Société Roumaine d'Ophtalmologie.** Tenu a Bucarest. Quarto, 240 pages. Paper binding. Cluj, "Cartea Romaneasca," 1926. (See p. 293.)

Altho a "bulletin"—a report of a medical association meeting, and in a paper cover, this publication in the French language is well worthy of being treated as a book; in as much as it contains a series of extensive articles on trachoma, which are quite important. As previously noted in these pages (October-November 1926), trachoma is pandemic in Russia and is evidently spreading thruout Eastern and Southern Europe by infection thru emigrès from polluted districts, especially in Russia; and there is now a cry of alarm, springing up especially in Roumania, where its incidence has increased manyfold since the World War. The four reports upon this subject agree in this respect.

Michail takes up the etiology, contagiousness and the experimental and anatomic study. While he shows it is primarily a disease of the poor and is contagious; that it is a true specific disease, whose contagion is the Prowaczek-Halberstädter corpuscles, found in 52% of the cases; yet it is combined with other infective bacteria, which produce the variations in the pathologic picture. It is interesting to note that the very young, even nursing infants, are found infected, showing typical clinical phenomena—something that we do not see in this country. Helene Puscariu writes on the symptoms, clinical forms, associated affections, the evolution and diagnosis. Here trachoma is divided into the benign and the hypertrophic types.

Manolesco has an extensive article on its treatment and prophylaxis. He shows that trachoma is endemic in Roumania, thruout the country, but most frequent in Bessarabia, that cases have increased in number since the war, that only an approximate idea of its extent can be ascertained; that owing to treatment—which is employed in hospitals, orphan asylums, the army and where patients can be kept under control—it is curable within 45 to 60 days!! He uses the older remedies, nitrate of silver, copper sulphate, for mild cases; brossage with mercurial solutions for the hypertrophic stages, and combined excision of tarsus and medical treatment in the cicatricial types. Complications are dealt with in the usual manner.

Colonel Panaitescu's article on Trachoma in the Roumanian army is most enlightening. He shows that the existence of trachoma in Roumania is recent—probably not much earlier than 1856-7, imported first by the Jewish refugees from Poland, the Hungarians, the Bulgarians and the Turks; but not to such an extent as has recently occurred from fresh infection from Russia. Troops from these nations have been quartered in and have crossed the country in every direction, all of these armies being badly infected with granular ophthalmia. The invasion of the country by the Ukrainian population, driven out by the Russian Bolsheviks, the prisoners captured by the allies, transported or interned in this country, helped spread the disease, until now a large part of the civilian population is infected.

In the Roumanian army, during the months of March when the new classes of recruits came in, there is a heavy increase, going as high as 5,225 cases in 1924, but rapidly reduced by treatment in each year, so that in December the number is about one-tenth of this amount. He considers that the Roumanian army is by no means the nidus of infection for the civil population,

but is really a curative institution and a prophylactic element against the spread of the disease; for the young men with this cruel malady are here segregated until cured. No distinction should be made between folliculosis of the conjunctiva and frank cases of trachoma. These cases are all trachomatous and should be treated as such.

A scientific and efficacious campaign for the control of trachoma in his country is under way, with the collaboration of the civil and military services. Cases are segregated, hospitalized and at least in the military services, are fully cured.

The other essays published in the proceedings are well written, but not of such great significance as the report on trachoma. H. V. W.

**Food, Nutrition and Health. E. V. McCollum,** Ph.D., Sc.D., and **Nina Simmonds,** Sc.D. Buckram, 12mo, 143 pages, published by the authors, Baltimore, Md. Third Edition—1926.

The ophthalmologist should find it necessary to regulate the diet in many of his patients and it is advisable for him to keep up to the times, especially as the laity are constantly being given advice from more or less authorized sources in the daily papers and popular magazines.

This book is written to meet the needs of the general public, and is a nontechnical account of the results of modern researches on foods and nutrition. The essential facts necessary to an understanding of what can and what cannot be accomplished thru diet are presented, without the burden of the great mass of experimental data both on man and animals upon which present day knowledge in this field is based. If the public is to profit within a reasonable time from the new science of nutrition, all who appreciate its importance must cooperate in giving it publicity. Only those who are ill enough to be under the care of a physician obtain his counsel on diet.

There has never been a time when so few people were interested in the subject of foods and nutrition as now, a few years ago appetite was thought to be a safe guide to the selection of food, but the appetite may call for excessive amounts of sweets, alcohol, tobacco, habit forming drugs. With the growth of cities, such foods as milk, eggs, butter, fruits and vegetables have become much more expensive and are not obtained in as fresh condition as formerly, when the country was more agricultural when much was raised by the family.

This book goes into the subject of vitamins, in which connection the subject of ophthalmia of dietetic origin is taken up, which is common in parts of the Orient producing blindness and complications of grave character. It has occurred numerous times in recent years in Denmark, Newfoundland and Labrador where the diet has been unsatisfactory, and in Austria, Russia, Germany and Roumania during the World War, where the food was limited to corn meal and soup made from bran and vegetables, in Denmark where the children were fed on boiled skim milk, oatmeal and barley soup, and in Japan in 1904 when there was a food shortage. It never occurs where suitable amounts of butter or cream are used. Chicken livers and eel fats will cure the condition, as they contain the vitamin A. Night blindness or hemeralopia is the principal lesion, but conjunctival diseases and corneal complications occur.

The want of vitamin B causes beriberi, seen in the rice eaters of the world, in the Philippines and Brazil. The want of vitamin C is due to noningestion of fruits and other antiscorbutic foods. Rickets is caused by nonabsorption of vitamin D, most abundant in the sea foods, particularly fish, and from poor light. Vitamin E has to do with reproduction and the loss of it causes sterility. Pellagra comes from the absence of such foods as milk, lean meat, eggs and fresh vegetables, and the ingestion of foods deficient in vitamins and which are not satisfactory with respect to their mineral content.

Mineral Matters in foods, Quality of Proteins; Life History in Relation to Diet; Dietary Habits of Man; Dietary Properties of Foodstuffs; the Nervous System and Nutrition; Hygiene of the Digestive Tract; the Diet

and Preventive Dentistry by Diet; Reduction of Weight, and Systems of Diet Promoting Health are described.

H. V. W.

**System of Diet and Dietetics.** Edited by **G. A. Sutherland,** M.D., F.R.C.P., with contributions by 18 of the principal authors on Dietetics in the British Dominions. Buckram Octavo, 893 pages with full index.

This is a technical scientific work for the physician, and delves deeply into the subject from all sides. It takes up the Evolution of Man's diet; Physiology Experimental Work on Diet Cures; Patent and Proprietary Foods; Invalids' Dietary. Alcohol in Health and Disease; Artificial methods in Alimentation, and a number of essays on diet in diseases and disorders of special organs. Diet in old age; The Feeding of Infants and Children and Diet in diseases in hot climates.

It is believed that this is one of the best books of reference that has been brought out is recent years for the use of the physician for the understanding of and prescription of diet for his patients.

H. V. W.

## CORRESPONDENCE.

### Protozoan Disease.

*To the Editor:*

Having read Dr. Lloyd Mills' article in the Pre-Sessional Volume of the Ophthalmic Section of the A. M. A., I thought New Orleans of all cities should be rich in cases of protozoan (amebic) infections of the rectum and lower colon. Knowing that the records of the Charity Hospital had been carefully kept of late years under the administration of the Registrar, Dr. G. Farrar Patton, I wrote to the Superintendent, Dr. W. W. Leake, asking him if he could and would be kind enough to give me the number of infections in rectum and colon with protozoa (nondysenteric) recognized among the patients of the hospital during the past five or even three years. Dr. Leake referred my note to the registrar, Dr. Patton, who replied fully after a painstaking examination of the records, for which I felt much indebted. Thinking that it might interest some of your readers, I append the essential portion of Dr. Patton's report.

H. Dickson Bruns.

*New Orleans, La.*

"On an understanding with Dr. Bruns, I have restricted the inquiry to cases recorded as colitis nonspecific and proctitis. Under the diagnosis of colitis nonspecific, I have personally examined the first 500 histories of that disease filed since the establishment of the Record Room in February 1906, covering a period of some 20 years, with the result that I find mention of a microscopic examination of discharges from the bowel in only 177 cases, or slightly more than 35 per cent. It does not necessarily follow that many more such examinations may not have been made without being recorded, but it is doubtless true that in numerous mild cases the diagnosis was made on superficial clinical aspects, as confirmed by effects of treatment.

In the majority of cases where microscopic examination is noted, the result of same is merely reported as negative for ameba and ova of intestinal parasites; but in eleven histories the following findings are mentioned:

| | Number of Cases. |
|---|---|
| Large numbers of cercomones intestinales | 1 |
| Strongyloides intestinales | 1 |
| Numerous bacilli, probably B. Dys. | 2 |
| Tricocephalus Dispar. | 3 |
| Ova of uncinaria | 4 |

In the division devoted to Diseases of Children (12 years and under) only 24 histories of "Colitis Nonspecific" have been filed, among which are three reporting microscopic examination, all simply negative for ameba and ova of parasites.

I have further examined all histories filed as Proctitis acute and chronic, numbering only 40, with the result that I find only four in which microscopic examination of rectal discharges is noted. In two of those cases gonococci were found. In the other two findings are reported as negative."

G. Farrar Patton, M.D.,
Registrar.

### Corrected Geography.

*To the Editor:*

Contrary to the statement in the July Journal, p. 562, I have never removed

my residence to Duluth. As always since I came to the head of the lakes my office is in Duluth, Minn., my home at 1920 John Avenue, Superior, Wisconsin. The fact that these two greatest cities in the world, altho separated from each other by only a narrow bay, are nevertheless situated in different states is naturally productive of much confusion in the minds of nearly all of my friends. Some persons even think that I in Superior, am the father or the son, of myself in Duluth.

Very sincerely yours,

T. H. SHASTID.

**External Retinosis.**

*To the Editor:*

Will you please make it known to our readers that thru the delay in the correction of the proofs of my article in the February number of the Journal, the title of the paper was not correctly printed? It should read as follows: "Classification of Retinal Diseases; External Retinosis and Choroiditis." A table showing the different groups of retinosis was also omitted.

Very sincerely yours,

M. URIBE TRONCOSO.

*New York City.*

(It has come to our notice that in the title page, published with the December number, the name of Professor Uribe Troncoso was inadvertently omitted on the list of the Editorial Staff. It belongs in the list and we hope will continue to do so for many years to come.—*Editor.*)

# ABSTRACT DEPARTMENT

**Reprints and journal articles to be abstracted should be sent to Dr. Lawrence T. Post, 520 Metropolitan Building, St. Louis, Mo. Only important papers will be used in this department, others of interest will be noticed in the Ophthalmic Year Book.**

**Duke-Elder, W. Stewart. Ophthalmic Radiation Lamp.** Brit. J. of Ophthal., 1927, v. 11, p. 67.

The presentation of this instrument while premature, is to amend a former technic. The present apparatus is installed on a Gullstrand Slit Lamp table. The lamp is a quartz mercury vapor lamp (220 volts, 2-3 amp.); at a work distance the heat effect is negligible. The lamp is encased with the arc in front of a slit which can be rotated. The light is concentrated and brought to a focus by a diaphragm and a system of quartz lenses. Interposed in the beam is a Koeppe diaphragm with a revolving wheel containing five different filters, the sixth left empty. By means of the filters the range of the spectrum used can be altered at will. By use of this apparatus, strong concentration of ultraviolet can be obtained if necessary, controlled so that no direct incidence upon the lens occurs. The lens can be further protected by the use of eserin. Lid, conjunctival and corneal inflammations show good effect, but phototherapy is contraindicated in intraocular diseases excepting possibly in iritis with nodules. The author's observations with ultraviolet light in treatment of cataract, suggest it as a method for the maturation of cataract. Phototherapy of the eye should be used only by a competent physicist and ophthalmologist. When the investigator secures more clinical data in the application of this lamp in diagnostic work, he hopes to elaborate more fully at a later time. D. F. H.

**Behr, Carl. Luetic Optic Atrophy.** Zeit. f. Augenh., 1926, Band 60, p. 319.

Spirochetes are demonstrable in the visual pathway in about one-third of the cases of metalues but only when changes of an inflammatory or degenerative character are present. The spirochetes remain only in the mesodermal part of the nerve and therefore do not act by direct contact upon the nerve tissue as is the case in paralysis. The tabetic process can start at any place peripheral to where the optic nerve loses its system of septa just anterior to the chiasm. Endotoxins from spirochetes lodged in the extensive septal network and the thick pial sheath of the optic nerve produce first changes in the septa and then a marked disease and functional disturbance of the glial fibers. Since the lymph to nourish the optic nerve fibers is car-

ried from the blood vessels in the connective tissue septa along the glial fibers, the vitality of the single nerve fibers is thus diminished until they are finally destroyed. In no other part of the central nervous system is there even approximately so broad and intimate a connection between the mesodermal and the ectodermal neuroglial tissue as here in the optic nerve. It is thus easily understandable that where great numbers of spirochetes are present in the connective tissue septa, specific treatment by causing their destruction, can set free great quantities of endotoxins to which the already damaged nerve parenchyma completely succumbs.

As to the therapy of luetic optic atrophy, the author in his more than 100 cases has never seen a recovery or even any permanent improvement. These observations cover the use of mercury, bismuth, salvarsan as well as the modern protein and malarial therapy. Active treatment with any of the above agents can bring a good or usable vision quickly to a complete and permanent destruction. H. G. L.

**Holth, S. Technic of Tattooing the Cornea.** Norsk. Mag. f. Laegevidensk., 1927, v. 88, pp. 1-17.

This is a very complete and detailed exposition of the subject. The development of tattooing of the cornea is first reviewed. The author's final technic is then described. The new features of this are:

1. The selection of about ten coloring substances, all inorganic and all in powdered form, by the mixing of which the varying colorings of irides can be imitated. All are sterilized by dry heat at 160° C. for one-half hour.

2. The peripheries of the pupil and of the iris are defined before tattooing by the use of sharp rings.

3. Before applying the coloring matter, preliminary scarification of the area is done with two-needle or four-needle instruments. If iris is to be reproduced, the scarification is made so as to establish radial incisions. The coloring matter is then applied and scarification repeated.

The tattooing is often done in several stages. He emphasizes the free use of adrenalin to prevent bleeding during the procedure. The article is accompanied by numerous photographic illustrations of results of tattooing. D. L. T.

**Terrien, F. Chiasmic Syndrome and Fracture of Base of Skull.** Acad. de Méd., 1927, Jan. 18. Abst. Gaz. des Hôp., 1927, v. 100, p. 114.

The author spoke of some unusual symptoms, consisting of bitemporal contraction of the visual fields, almost always asymmetric, usually accompanied by decrease of central vision. Several cases were reported. There are other symptoms, sensory, motor, even hypophyseal, which justify the name chiasmic syndrome of traumatic origin. C. L.

**Bard, L. Importance of Blind Spot in Physiology.** Archiv. d'Opht., 1927, January, v. 44, p. 5.

Bard states that there has never been a satisfactory explanation of the fact that the blind spot is not registered in consciousness as a gap in the monocular field even tho objects small enough to fall entirely within its limits are not seen at all. In preparations made by himself and in other anatomic descriptions he finds that the retina surrounding the disc passes over a ring-like pad of tissue and gradually thins out to the disc margins. Thus the retina at the disc margin presents a convex surface toward the vitreous, and the axes of the rods and cones immediately surrounding the disc are tilted toward the center of the disc.

It is known that rays of light striking the rods and cones of the retina are projected in consciousness along the axes of those rods and cones. Therefore the rays which strike these tilted rods and cones surrounding the disc are projected into the disc area or blind spot and so we are not conscious of an interruption of continuity of the field. But if an object is so small that its image falls entirely in the blind area we simply do not see it, without being conscious of a gap in the field. The after image of the blind spot seen after viewing a uniform surface is not due to a conscious gap in the field, but

to a difference in sensitivity between the rods and cones in the tilted area and those in the remainder of the retina.

Bard claims that this is the first and only explanation of the physiology of the blind spot based upon actual anatomic structure and physiologic principles. M. F. W.

**Paderstein, R. Endurance in the Application of the Giant Magnet.** Klin. M. f. Augenh., 1925, Nov.-Dec., 75, p. 720.

A case is reported in which after more than 18 futile applications of the giant magnet the last energetic attempt pulled the piece of metal thru the iris.

In two other cases the sideroscope deceived by being attracted by objects of steel worn by the attendants. After these were laid aside the instrument showed no deviation, since the intraocular piece in one case was not iron, in the other not present, the roentgen ray examination having been faulty C. Z.

**Moore, R. Foster. Corneal Section in Cataract Extraction.** Brit. J. of Ophthal., 1927, v. 11, p. 10.

As a means to prevent buttonholing the iris in making the corneal section, the author carries the point of the knife inwards and upwards at one sweep. Thus, almost the whole section is made by the belly of the knife. The iris which shows a tendency to bulge over the edge slips under. If the iris does slip in front of the blade, it can be made to slip under by holding the knife in position and stroking the overlying cornea with a repositor. D. F. H.

**Comby, J. Oxycephaly with Irreducible Proptosis of the Right Eye.** Soc. Méd. des Hôp., 1927, Jan. 14. Abst. Gas. des Hôp., 1927, v. 100, p. 114.

The case was that of a girl of 2½ years with bilateral exophthalmos. It was congenital but not hereditary. Five years later, the right eye was proptosed so far that it could not be replaced, necessitating an operation. C. L.

# NEWS ITEMS

### DEATHS

Dr. Isaac Sernoffsky of Buffalo, aged 42, died Nov. 12, 1926, of myocarditis.

Dr. William A. Edwards of Maywood, Illinois, aged 62, died Feb. 25, 1927, at the U. S. Veterans Hospital, of tuberculosis.

Dr. J. C. Uhthoff, Consulting Physician to Sussex Eye Hospital, died January 19, 1927, at Brighton, England.

Dr. Louis J. Lautenbach of Philadelphia, a graduate of the University of Pennsylvania in 1891, died May 19, 1926, of angina pectoris, aged 65 years.

The death of Dr. Roberto Rampoldi of Pavia, Italy, occurred in the latter part of 1926. He called attention to monolateral dilatation of the pupil as a sign of tuberculous disease of the bronchial glands acting thru pressure on the sympathetic nerve. He proposed the treatment of epithelioma of the lids by a fluid extract of jequirity and at one time considered it a specific.

### SOCIETIES

Section on Ophthalmology of the College of Physicians of Philadelphia met Thursday, March 17, 1927. The following program was given: Dr. J. Milton Griscom: "A Further Report Upon Angioid Streaks of the Retina." Dr. Jonas Friedenwald, of Baltimore, Md. (by invitation): "Choroiditis and Retinitis in Fetal Syphilis." Lantern and Microscopic Sections. Dr. Hunter W. Scarlett: "Some Clinical and Experimental Observations on the Use of Foreign Protein, Especially in Iritis." Dr. William C. Posey: "Trachoma Among the Indians of the South-west." Dr. T. B. Holloway: "Some Remarks Concerning Trachoma Among Certain Indian Tribes in Oklahoma."

At the annual meeting of the St. Louis Ophthalmic Society held January 29th the following officers were elected for the ensuing year: President, Dr. John Green; Vice-President, Dr. Wm. F. Hardy; Secretary, Dr. H. M. Post; Treasurer, Dr. H. D. Lamb; Editor, Dr. Charles W. Tooker.

### PERSONAL

Dr. J. F. Dickson of Portland, Oregon, and Dr. Geo. Swift of Seattle, Washington, were winter visitors to San Francisco.

Dr. L. Webster Fox was reelected president of the Pennsylvania Home Teaching Society and Free Circulating Library for the Blind, at the forty-fifth annual meeting of the society in Witherspoon Hall on January 26th.

### EXAMINATIONS

The American Board will hold Ophthalmic Examinations at the Episcopal Hospital in Washington, Tuesday, May 17. A similar examination will be given by the Board at Spokane, Wash., at the Sacred Heart Hospital, Monday, June 6th.

# Current Literature

These are the titles of papers bearing on ophthalmology. They are given in English, some modified to indicate more clearly their subjects. They are grouped under appropriate heads, and in each group arranged alphabetically, usually by the author's name in *heavy-faced type*. The abbreviations mean: (Ill.) illustrated; (Pl.) plates; (Col. Pl.) colored plates. Abst. shows it is an abstract of the original article. (Bibl.) means bibliography and (Dis.) discussion published with a paper.

## BOOKS.

**Cantonnet, A.** L'ionisation de l'Oeil, Technique et Results. 95 pages, 7 ill. 1927. Paris: N. Maloine. Clin. Opht., 1927, v. 31, p. 59.

Catalogue of Optical and General Scientific Instruments. Paper. Quarto, 336 pages. 476 ill. London. Published by the Optical Society. A. J. O., 1927, v. 10, p. 220.

**D'Autrevaux, Y.** Precis de technique histobacteriologique oculaire. 160 p. 24 ill. Paris. G. Doin et Cie. Clin. Opht. 1927, v. 31, p. 59.

**Hanke.** Das Auge. Seine Schädigungen ihre Verhütung und Bekampfung. 129 pages. 38 ill. Vienna, 1927. J. Springer. Klin. M. f. Augenh., 1927, v. 78, p. 304.

**Martin, F. H.** South America Amplified to include all of Latin America. Revised Ed. 460 pages. Ill. New York and Chicago. F. H. Revel Co. 1927. A. J. O. 1927, v. 10, p. 220.

**Pike, R. L.** The legibility of print. 123 pages. London. H. M. Stationery Office. Brit. Jour. Ophth., 1927, v. 11, p. 135.

Proceedings of the Optical Convention, London, 1926. Parts I and II. Cloth Quarto, 1078 pages, 46 pl. 393 ill. London. University Press, Aberdeen. A. J. O., 1927, v. 10, p. 218.

**Sattler, H.** Die bosärtigen Geschwülste des Auges. 310 p. 25 ill. 9 pl. Leipzig, S. Hirzel, 1926. Brit. Jour. Ophth., 1927, v. 11, p. 134.

**Villard, H.** Manuel elementaire d'Ophtalmologie. 1926 Montpellier. Abst. Clin. Opht., 1927, v. 31, p. 58.

## DIAGNOSIS.

**Dufour, M.** Magnification given by the ophthalmoscope. Soc. d'Opht. de Paris, 1926, Dec. pp. 705-708.

Legibility of type. Brit. Jour. Ophth., 1927, v. 11, p. 124.

**Menestrina, G.** New photographic stereoscope. (7 ill.) Arch. di Ottal. 1926, v. 33, pp. 487-498.

**Segaller, M.** Electric ophthalmoscope with slit lamp. Soc. d'Opht. de Paris, 1927, pp. 47-49.

**Villard, H.** Simulation of bilateral blindness. Clin. Opht., 1927, v. 31, pp. 82-90.

## THERAPEUTICS.

**Angelucci, A.** Autohemotherapy and iontophoresis in ophthalmology. (10 ill.) Arch. di Ottal., 1926, v. 33, pp. 440-463.

**Boucard, A.** Unfavorable effects of serum treatment. Clin. Opht., 1927, v. 31, pp. 95-97.

**Bücklers, M.** Experiments with ultrared rays. A. J. O., 1927, v. 10, p. 224.

**Chen, K. K.** Effect of ephedrin, pseudoephedrin and Bphenylethylamin on pupil and blood pressure. Arch. Int. Med. v. 39, 1927, pp. 404-412.

**Defoug, P.** Intravenous injections of salicylate of soda in ocular therapeutics. Soc. d'Opht., de Paris, 1926, pp. 736-738. Clin. Opht., 1927, v. 31, p. 119.

**Fromaget, C.** Intravenous injections of cyanide of mercury in ocular therapeutics. Clin. Opht., 1927, v. 31, pp. 19-27.

**Engel.** Influence of insulin on eye. Klin. M. f. Augenh., 1927, v. 78, p. 86.

**Java, K. G.** Therapeutics in ophthalmic practice. Indian Med. Gaz., Feb., 1927, p. 84.

**Monbrun, A.,** and **Casteran, M.** Application of high frequency in ophthalmology. Soc. d'Opht. de Paris, 1927, Jan. pp. 36-47.

**Morax, V.** Aseptic collyria. Soc. d'Opht. de Paris, 1927, Jan., pp. 28-31.

**Morisot.** Ion therapy in ocular affections. (2 ill.) Clin. Opht., 1927, v. 31, pp. 5-16.

**Szandicz.** Sign of intolerance to novarsenobenzol in conjunctiva. Clin. Opht., 1927, v. 31, p. 105.

Ultravoilet radiation and the eye. Lancet, March 12, 1927, p. 557.

**Van Heuven.** Colmatage and eye pressure. (Dis.) Klin. M. f. Augenh., 1927, v. 78 p. 110.

**Zabel.** Roentgen therapy in ocular diseases. Klin. M. f. Augenh., 1927, v. 78, p. 89.

## OPERATIONS.

**Kolen, A.** Scissors needle for discission. (1 ill.) Amer. Jour. Ophth., 1927, v. 10, pp. 186-188.

**Salzer.** Ocular irrigating apparatus. Klin. M. f. Augenh., 1927, v. 78, p. 85.

**Slavik, B.** Ocular anesthesia. Klin. M. f. Augenh., 1927, v. 78, p. 299.

**Strupoff, A.** Technic of extirpation of lid cartilage. (3 ill.) Klin. M. f. Augenh., 1927, v. 78, p. 264.

## PHYSIOLOGIC OPTICS.

**Haas, E.** Interpretation and utilization of Pulfrich phenomenon. (1 ill.) Soc. d'Opht. de Paris, 1926, Dec., pp. 653-658.

**Lambolez.** Fundamental formula of geometric optics. (2 ill.) Ann. d'Ocul. 1927, v. 164, pp. 51-55.

## REFRACTION.

Cobalt glass test. Jour. Amer. Med. Assn., 1927, v. 88, p. 858.

**Gapeeff, P.** Influence of lateral illumination on visual acuteness in myopia and hypermetropia. Klin. M. f. Augenh., 1927, v. 78, p. 116.

**Gertz, H.** Conditions of aplanetism. (1 ill.) Acta Ophth., 1927, v. 4, pp. 164-176.

**Gescher.** Parallax refractometer. Klin. M. f. Augenh., 1927, v. 78, p. 86.

**Greear, J. N.** Accommodation in aphakic eye. Amer. Jour. Ophth., 1927, v. 10, p. 209.

**Hammett, C. M.** Headache due to eyestrain. Amer. Jour. Ophth., 1927, v. 10, p. 208.

**Kuhl, A.** Instrument for determining objective refraction. Klin. M. f. Augenh., 1927, v. 78, p. 85.

**Landolt, E.** Explanation for skiascopy. (7 ill.) Arch. d'Opht., 1927, v. 44, pp. 65-87.

**Lederer.** Influence of radiation on accommodation. (Dis.) Klin. M. f. Augenh, 1927, v. 78, p. 97.

**Luedde, W. H.** Mechanism of accommodation. Amer. Jour. Ophth., 1927, v. 10, p. 222.

**Milian and Perin.** Acute myopia from neoarsphenamin. Medicine, 1926, v. 8, pp. 144-147.

**Wood, H.** Monocular persistent paresis of accommodation with central changes. Amer. Jour. Ophth., 1927, v. 10, p. 205.

## OCULAR MOVEMENTS.

**Agnello, F.** Hemicranial ophthalmoplegia. Arch. di Ottal., 1926, v. 33, p. 552.

**Babonneix, L. and Monet, J.** Isolated abducens paralysis. Amer. Jour Ophth., 1927, v. 10, p. 230.

**Butler, T. H.** Combined strabismus hook and muscle clamp. Brit. Jour. Ophth., 1927, v. 11, p. 123.

**Feilchenfeld, W.** Snellen's theory of convergent strabismus. Klin. M. f. Augenh., 1927, v. 78, p. 243.

**Fink, W. H.** Significance of latent ocular muscle imbalance. Amer. Jour. Ophth., 1927, v. 10, pp. 168-170.

**Goldschmidt.** Ocular torticollis with vestibular nystagmus. Klin. M. f. Augenh., 1927, v. 78, p. 104.

**Kleefeld.** Casulomuscular advancement with asymmetric sutures. (4 ills.) Bull. de la Soc. Belge d'Opht., 1926, No. 53, pp. 73-79.

**Merigot de Treigny.** Voluntary nystagmus of both eyes. Soc. d'Opht. de Paris, 1927, Jan., p. 9.

**Ohm, J.** Optical rotary nystagmus. (2 ills.) Klin. M. f. Augenh., 1927, v. 78, pp. 218-227.

**Sabbadini.** Paralysis of external rectus following vaccination. Arch. di Ottal., 1926, v. 33, p. 551.

**Sattler, C. H.** Accurate measurement of motor disturbances of eye. (30 ills., bibl.) Klin. M. f. Augenh., 1927, v. 78, pp. 161-178.

## THE CONJUCTIVA.

**Besso, M. G.** Autohemotherapy of trachoma. (4 ills.) Arch. di Ottal., 1926, Dec., v. 33, pp. 562-565.

**Bonnet.** Trachoma. (13 ills.) Soc. d'Opht. de Paris, 1926, Dec., pp. 646-649.

**Cummins, S. L.** Reactions of Guinea pigs to graded conjunctival infections with tubercle bacilli. Amer. Rev. of Tuberculosis, 1927, v. 15, pp. 306-328.

**Dusseldorp, M.** Treatment of trachoma by the cautery. (2 ills., bibl.) Arch de Oft. de Buenos Aires, 1927, v. 2, pp. 222-239.

**Ferguson, B.** Treatment of trachoma. Amer. Jour. Ophth., 1927, v. 10, p. 221.

**Ferreri di Marzo, G.** Blepharoconjunctivitis and rhinitis. Arch. di Ottal., 1926, Dec., v. 33, p. 557.

**Imre, J.** Operative treatment of trachoma. Arch. of Ophth., 1927, v. 56, pp. 205-206.

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